INDIA RUBBER WORLD

Published on the 1st of each Month by

THE INDIA RUBBER PUBLISHING CO

No. 25 West 45th Street, New York.

CABLE ADDRESS: IRWORLD, NEW YORK.

HENRY C. PEARSON, Editor

Vol. 50. APRIL 1, 1914. No. 1

SUBSCRIPTIONS: $3.00 per year, $1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, $3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank draft or Postoffice or Express money order on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal Order, payable as above.

DISCONTINUANCES: Yearly orders for subscriptions and advertising are regarded as permanent, and after the first twelve months they will be discontinued only at the request of the subscriber or advertiser. Bills are rendered promptly at the beginning of each period, and thereby our patrons have due notice of continuance.

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Entered at the New York postoffice as mail matter of the second class.

TABLE OF CONTENTS ON LAST PAGE OF READING.

THE AWAKENING ON THE AMAZON.

THE rubber industry of the Amazon is not by any means wiped out. Nor is it likely to be as long as there are rubber trees by the millions only waiting to be tapped. The trustees of this great industry have been profligate and extravagant in the discharge of their obligations, with the result that their stewardship is at an end, and the real owners—the people of Northern Brazil—are at length fully aroused to the seriousness of the situation and are standing shoulder to shoulder in determined effort to save their heritage.

That they have lived extravagantly in the past is no reason to believe them unable to live economically in the future. In fact the practice of rigid economies has already begun. Under the old and now discarded system it cost 60 cents' worth of food to produce one pound of islands rubber. Upriver sorts cost from 75 cents to $1 a pound. Who knows how cheaply a pound of Pará rubber can be produced under the new order of things? It is a struggle for existence by a people who are determined to live and to preserve their rubber industry. The province of Acre is already spreading the gospel of economy, and Amazonia and Pará are falling into line. The state and federal governments will be forced to reduce the burdensome taxes, and then it will be seen, and no doubt with surprise, how cheaply Amazonian rubber can be produced.

THE RESPONSIVENESS OF THE DUMP HEAP.

THE philosophical Duke in "As You Like It" has been much commended for his ability under trying circumstances to find "books in the running brooks, sermons in stones and good in every thing"; but, to employ a modernism, he had nothing on the waste material dealer of today, who finds vast riches in tin cans, millions in worn-out and cast off goloshes and wealth in every dump heap.

An interesting event occurred about the middle of March, when the National Association of Waste Material Dealers met in New York for their first annual dinner. There were several excellent addresses emphasizing the great development of the industry with which they were associated, while the chief speaker of the evening—Mr. Curtis Guild, of Boston, ex-Governor and ex-Ambassador—paid the assembled dealers the compliment of appearing before them with a carefully prepared and scholarly dissertation giving a comprehensive and historic survey of the whole conservation industry. The occasion and the character of the speeches, the statistics quoted and facts recited, proved what an important position the gathering of waste materials had attained among recognized industries—in other words, showed the colossal size and amazing richness of the national rubbish heap. The whole subject is one of profound interest to the student of economics, but the reclaiming of rubber waste naturally calls for the greater attention in these columns.

The statistics of waste rubber collection are, necessarily from the nature of the enterprise, a little vague, but it probably is a conservative statement to say that, taking the world over, 275,000 tons of scrap rubber is collected during the year. We have imported during the last two or three years about 20,000 tons of this material annually, and have probably collected 125,000 tons of our own, giving our reclaimers something like 145,000 tons a year as material for their operations. This results in a product of reclaimed rubber in this country of approximately 85,000 tons. As we use in the neighborhood of 50,000 tons of new rubber, it will be seen that the dump heap contributes 70 per cent. more material for our manufacturing plants than the Valley of the Amazon and the Eastern plantations combined. It probably would be a conservative estimate to place the value of the waste rubber collected in this country in a year—based on an average of 7 cents a pound—at $17,500,000; and it would be safe to say that the value of the annual reclaimed product—

including the 20,000 tons of waste from abroad—would be somewhere from $25,000,000 to $28,000,000. In view of which it is not to be wondered at that the men responsible for this great reclamation of waste material should feel themselves entitled to gather at the banquet board and eulogize their industry. They are among the great conservationists.

FOUR MONTHS OF THE NEW TARIFF.

IT may be rather early to formulate definite conclusions—that is, conclusions not open to later revision—on the working of the new tariff, but the report recently issued by the Department of Commerce at Washington, giving the exports and imports in various industries for the first four months under the operation of the new schedule—from October 1 to January 31—certainly furnishes data for interesting speculation, or, as the moralists are wont to say, "food for thought."

During these four months under the new tariff there has been a general decrease in the value of imported materials for manufacture of $47,000,000, or 10 per cent., while importations of finished manufactured products increased nearly $10,000,000, or 6 per cent. The report shows that there was a decrease in imports in practically every line of raw material for manufacturing purposes. The volume of crude rubber imports during these four months amounted to 36,800,000 pounds, as against 42,500,000 pounds during the same months a year ago—or a reduction of 13 per cent. In value, the imports of crude rubber, including substitutes, dropped from $38,750,000 to $21,250,000, or a decrease of over 45 per cent. But of course a substantial part of this decrease must be attributed to the lower prices of rubber that have prevailed during the past season. The decrease in volume of imports, however, is certainly suggestive.

While the first four months of any new tariff schedule cannot be properly taken as a criterion, the showing made by the report of the Commerce Department is certainly interesting as an indication of tendency.

THE AMERICAN CONSUMPTION OF RUBBER.

NOTWITHSTANDING the falling off in the importations of crude rubber during the last few months, under the new tariff law, as mentioned above, we still conspicuously lead the world in rubber consumption. A carefully computed tabulation which appears on another page shows that in 1913 Americans consumed rubber to the extent of 1.06 pounds *per capita*. This is over twelve times the rate of consumption in Italy, over seven times that of Russia (notwithstanding the long winters and deep snows of that country, which call for the general use of rubber footwear), over three and a half times the rubber consumption of Germany, over twice that of France and more than twenty per cent. greater than that of our nearest rival, Great Britain. Generally speaking, we have for a number of years used one-half of the entire world's crude rubber supply. Possibly under the new tariff this ratio may be somewhat altered and more than one-half of the total crude supply go elsewhere, but the consumption in this country of rubber manufactured goods is not at all likely to decrease. As a matter of fact, with the constantly growing popularity of motor vehicles—an increase much more rapid in this country than anywhere else—our proportionate consumption of manufactured rubber goods is likely to be greater during the next few years rather than less.

A GENUINELY HELPFUL SORT OF HELP.

THE press has recently given a great deal of attention to a particularly successful and philanthropic automobile manufacturer who has embarked on a profit-sharing system of unheard-of proportions, the report being that workmen who have been getting $4 a day were to have their wages practically doubled, that scrubwomen and office boys were in some cases to be paid $5 a day, and so on up and down the payroll generally—the underlying principle of the plan evidently being to remunerate employes with a munificent disregard of all established industrial standards.

All of which is most altruistic and suggestive of the dawning of the Golden Age, but somewhat upsetting to the settled order of things. If, for instance, the general market price for an office boy's services is $5 a week, it is distinctly disturbing to the office boy market to have it widely promulgated that in one particular enterprise these services are to receive five times the market price, with other lines of endeavor rewarded in proportion. It is not to be wondered at that the manufacturer's plant was immediately surrounded by vociferating mobs. Let it be generally exploited that a certain locality is overflowing with easy money and that point is bound to become a storm center compared with which the activities of the ancient Goths and Vandals were mild and mannerly.

The Ford experiment is certainly exceedingly interesting, and its beneficiaries are to be sincerely congratulated on their suddenly improved conditions; but many economists entertain grave doubts as to the ef-

fect of this new departure, not only on industry generally but on the particular industry involved.

It is quite possible, however, to help employes without doubling their pay. The best help that can be extended to them is to widen their horizon and increase their efficiency. That education is to be preferred to money in hand is proved by the great number of thriving institutions of learning all over this country and the vast sums in the aggregate expended by fond parents to secure for their children what these institutions have to offer. To give employes a chance to educate themselves is, therefore, quite as great a gift, if not an even more valuable one, than to give them an increase of pay. An item in the news columns of our March number spoke of a rubber manufacturing company in New Jersey that is preparing an auditorium in which its employes, and particularly the younger people, both boys and girls, can meet two evenings in the week to get the benefit of illustrated lectures covering the various departments of the industry with which they are connected. Now here is a helpful service, as it must necessarily broaden the outlook of these young workers and give them some idea of the relationship between the particular piece of work they are doing and the whole industry of which it is a part.

Perhaps someone may raise the objection that to give a workman instruction beyond the particular line of work that he is called upon to do is to make him discontented with his present task and fill him with an ambition to do something else, something better and more remunerative. But that is no objection. Every workman should be permitted to push up as high as he can. It is always easier to fill the lower positions than the higher ones. Besides, quite apart from the manufacturer's own personal interest, it is his duty as a good citizen to encourage all those in his employ to become as useful as possible. Broadly viewed, it seems quite reasonable to ask if it is not really a greater benefaction to open wide to the workingman the door of opportunity than it is to give him immediate and exceptional access to the till.

THE ANNUAL SHOW LOSING FAVOR.

AFTER the recent automobile show in Manchester, England, a vote was taken by the manufacturers and traders as to whether it should be held again next year. A general ballot of exhibitors showed 413 against its repetition to 220 for it, while a vote of the manufacturers was 42 against and 14 in favor of another show. It will be recalled that at the time of the automobile show in New York last January most of the large tire manufacturers decided to abstain from participation, on the ground that the results were not commensurate with the outlay, and on the further ground that these annual functions cause a considerable disturbance of the regular routine of business.

Industrial expositions held from time to time to show the progress made in any line of manufacturing activity are undoubtedly desirable, as they are instructive, serve to increase the enthusiasm of those connected with that particular industry and excite interest in it among people generally. Expositions of this sort are without doubt profitable to the trade, but the regular annual show—promoted largely as a vehicle of advertising—is evidently losing favor on both sides of the water.

THE LATEST EXPLOIT OF INVENTIVE GENIUS.

WE Americans are rather fond of boasting, in our modest way, of our national genius for invention; and this contention seems to be fairly well established by the great number of patents—now reaching considerably over a million—that have been issued by our patent office. As one result of this great multiplicity of original devices we pay, ordinarily, very slight attention to new inventions, unless they are of an epochal character—as, for instance, wireless telegraphy and the much feared dictagraph.

But here comes an invention that is bound to command attention. Some humanitarian has devoted a great deal of thought to the unhappy condition of the people who ride on motor cars, who, in his opinion, between the electrical mechanism of the car and its continual vibration, and the fact that it is completely insulated by its rubber tires, are liable to become surcharged with electrical forces, to the serious undoing of their nervous systems. To remedy this disquieting situation, so menacing to our national health, he has invented a kind of trailer reaching from the body of the car to the earth, which conducts away the electrical currents as fast as they are generated, so that the motorists go unscathed.

This new invention will doubtless prove a great boon, and all motoring mankind will rise up and bless the inventor, but it is susceptible of one improvement. There should be an additional appliance—a sort of side wire—to convey to the absorbing and purifying earth the usual language of the natural man who, far from home and without a spare tire, encounters a blow-out.

WHAT THE RUBBER CHEMISTS ARE DOING.

[Extracts from recent articles on the Chemistry of Rubber which have appeared in some of the foreign publications.]

IN the "Kolloid Zeitschrift," Vol. 13, page 265, Spence and Young make their seventh contribution on the "Theory of Vulcanization." These authors vulcanized two compounds at temperatures varying from 50 degs. C. to 75 degs. C. at intervals of 5 degs. Compound A, which contained 90 parts of extracted plantation rubber and 10 parts of sulphur, after being kept for 90 days at 75 degs. C. contained only 0.32 per cent. combined sulphur. Compound B differed from compound A in that it contained 1 per cent. of acetone soluble substances. Compound B showed a regular increase in the velocity of vulcanization, as measured by the combined sulphur, with increase of temperature. It was not possible to observe any critical temperature at which vulcanization started. From results obtained a temperature coefficient of 2.84 is calculated which is in accordance with that required by a chemical reaction.

The authors also carried out vulcanization experiments with extracted plantation Pará, extracted gutta percha and extracted and purified balata. These substances were compounded with 37 per cent. sulphur and vulcanized. It was found that these hydrocarbons all vulcanized at the same rate and yielded the same end-product $(C_{10}H_{16}S_2)_n$ of identical physical properties. As results of these experiments the authors conclude that the vulcanization of Pará, gutta percha and balata is a catalytic chemical reaction, that vulcanization takes place at all temperatures, and that the same compound $(C_{10}H_{16}S_2)_n$ is always formed, provided there is an excess of sulphur.

In the "Gummi Zeitung," Vol. 28, page 747, E. Fickendey contributes an article "On the Effect of Scraping the *Manihot* Tree on the Yield of Rubber Obtained." In this article attention is called to the German patent No. 265,937 issued to the government of Cameroon for a process for increasing the yield of latex of the *Hevea brasiliensis*. The process consists in scraping, prior to tapping, the external portions of the bark as far as the green cork cambium. This scraping is repeated at definite periods of time during the tapping season. Trees so scraped nearly always yielded twice the normal output of rubber and in some cases four times the amount.

In the case of *Kickxia*, it was found that this scraping had no effect on the yield of latex and it is suggested that this fact is probably connected with the observation that the *Kickxia* tree does not exhibit what is known as wound reflex. It was therefore of interest to determine whether a tree such as the *Manihot*, which does exhibit the property of wound reflex, would be affected by this scraping of the bark. It was actually found that this scraping process did materially increase the yield of latex in the case of the *Manihot*, altho the increase was not quite so marked as in the case of the *Hevea*.

In the "Journal of the Society of Chemical Industry," Vol. XXXII, page 1041, W. A. Caspari contributes an article on the "Composite Nature of Raw India Rubber." Attention has been called by previous investigators to the fact that crude rubber is not completely soluble in the usual solvents and that it consists of a soluble and an insoluble portion. Caspari found that by using petroleum ether, B.P. 40 to 65 degs. C., a very satisfactory separation of the component parts of the rubber could be effected. By means of this solvent it is possible to obtain two distinct bodies, which may be described as soluble and insoluble rubber. The soluble portion is a colloid of relatively slight mechanical strength and has a pronounced tendency to become soft and sticky, especially on the application of heat. With solvents it forms a transparent solution and does not swell very materially prior to solution. The insoluble pectous portion is a colloid of considerable elasticity, with a tendency to retain its structure in the presence of solvents, tho subsequently swelling to a "jel," usually with increase in volume. Both portions are doubtless constituted of the same hydrocarbon and have about the same specific gravity. The author constructed an apparatus for determining quantitatively the amounts of these two constituent parts of the rubber and gives the results of the determinations carried out with a variety of crude rubbers.

MANUFACTURE AND PROPERTIES OF SUBLIMED WHITE LEAD.

SUBLIMED white lead is the commercial name for the basic sulphate of lead produced by the oxidation of galena, the sulphide of lead, under the intense heat of an oxidizing atmosphere. The violence of the combustion produces a white sublimate, which, when purified, is known as sublimed white lead.

Commercial sublimed white lead, however, contains a higher percentage of lead sulphate than is required for its theoretical formula, conditions being so adjusted that a compound is obtained showing about 16 per cent. of lead oxide.

Sphalerite or sulphide of zinc is present in nearly all non-argentiferous lead ores, and when it produces zinc oxide to the extent of about 6 per cent., enhances the value of the pigment.

Hard coke is used as fuel, with metallic iron and limestone as fluxes, together with the silica present in the ore. Blue Fume (or sublimed blue lead), which is frequently used as additional charge material, is formed in the smelting of lead ores, and is found to contain about 35 per cent. of lead oxide and about 50 per cent. of lead sulphate. According to Mr. John A. Schaeffer, of the Picher Lead Co., Joplin, Mo., this fume pigment (or sublimed blue lead), ground in oil, is being rapidly adopted for the protection of iron and steel.

The oxidizing furnaces (two of which are considered a unit) consist of oval iron water-jackets on a solid brick base, with a small tap-hole for the continuous removal and sorting of slag and metallic lead. Immediately upon feeding the charge into the furnace, the temperature of which is maintained at a point of incandescence, sublimation occurs with great violence, the volatilized lead passing upward into the combustion chamber. A powerful fan draws the condensed fume onward through the cooling system into the bag room, which is of a special type somewhat like those used for the collection of all fumes. In this room are three rows of hoppers, each carrying 24 bags. The gases are forced through the cloth of the bags, while the sublimate is deposited.

Sublimed white lead as removed from the hoppers is white in color. It consists of very fine amorphous particles, about 1/35,000 of an inch in diameter, its specific gravity being 6.2.

Its composition is approximately 78 per cent. lead sulphate, 16 per cent. lead oxide and 5.5 per cent. zinc oxide. The lead oxide present is chemically combined as a basic sulphate of lead, the sulphate of lead in excess of the amount required for the theoretical formula being held by practically all authorities to be neutral sulphate of lead.

In common with other white lead compounds, sublimed white lead is most valuable as a paint pigment when compounded with zinc oxide and a small percentage of inert crystalline pigment. It is being extensively used in compounding the finer grades of rubber goods. Moreover, it practically inhibits the corrosion of iron and steel, when applied as a protective coating, even after long exposure, thus preventing decay by eliminating the cause which destroys the metal and lengthening its life as a structural material.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; Rubber Trade Directory of the World.

The Rubber Crisis in Brazil.

The true condition of affairs on the Amazon, particularly in its relation to the rubber industry, has been difficult to arrive at. Cables from Pará and Manaos told of failures, of rioting, of chaos. Calamity howlers predicted prompt annihilation of all business. The facts are told in the following pages by a member of the Editorial Staff of The India Rubber World *now in Pará.*

IN spite of newspaper talk of revolution and riot the city of Pará is as safe and as quiet as ever it has been. Business troubles? Yes! lots of them! Failures? Scores and scores; but business goes right on, and the end of the rubber business is not in sight.

In order that the present situation in the Amazon Valley may be understood, it is necessary to review the causes which have led up to it. It might be expressed in one phrase—unlimited credit to irresponsible parties, a condition that is no more. Retrenchment is universal. Brazil has her nose to the grindstone and the operation is proving to be her salvation.

OLD CONDITIONS BEFORE THE CRASH.

The trouble started years ago, when the Amazon was the only real source of the world's supply of rubber. It was not a question of how the rubber was taken out, or whether the financial plan was a sound one or not. It was only necessary to get rubber to the market, and the high prices, natural or artificial, took care of the rest. There seemed to be only one way and that was for the aviador to extend credit to the aviado, and the aviado to the *seringueiro*. As long as these three factors working together secured the rubber all was well. Even if the price was low, and did not balance the various indebtedness charged against it, the annual credit for goods was issued and paper profit swelled on the books of both aviador and aviado.

Be it remembered that the *seringaes*, or rubber districts, are owned by men who live in Pará or Manaos and rent them out. The owner usually has a wholesale supply house in Pará or Manaos and is called an "aviador." The man who rents the *seringal* is called an "aviado." He is trusted by the aviador with thousands of dollars worth of goods in a season. The basis of this transaction is the expectation that the aviado will pay in rubber. The avaido, who is in charge of the *seringal*, trusts the *seringueiros* with supplies and sends them off to gather rubber. From the moment they disappear in the forest all control over them is lost. They are absolutely without restraint or responsibility. Yet it is remarkable that as a rule they prove trustworthy and return to the aviado with the rubber.

Administration Building on Moju Plantation, State of Para.

The aviado and *seringueiro* agree on a price for the rubber. Sometimes the latter has a balance coming to him, but he usually is in debt, and heavily, to the aviado. This makes no difference, however, and he always returns to his *barracão* with more supplies, to be paid for in rubber.

Seringal on the Jurua River.

It is the same with the aviador who receives the rubber sent down the river by the aviado. The account is credited with the full value of the rubber as the aviador does not make money on the rubber thus received but on the goods which he ships back to the aviado.

In the Acre district many of the owners of *seringaes* are also storekeepers or aviados. Some of them own and operate steamers which carry the rubber to Pará or Manaos and return laden with goods. They sell goods to other aviados on credit and accept rubber in payment. These *seringal* owners are potentates living in far away places, surrounded by ignorant natives, and for the most part uneducated; so it is little wonder that they have often been harsh and cruel in dealing with the *seringueiro*. At home they were all powerful, dispensed favors and goods on credit with a lavish hand. These men, if sold out, could not produce a cent of actual money; yet they were trusted by some aviador in Pará or Manaos for hundreds of thousands of dollars.

As long as Brazil's supremacy as a world's rubber producer was unchallenged there was not a cloud in the sky. If the market was low and rubber sold below cost, it did not matter for the books showed a large profit on the goods supplied. But the day of accounting finally came, and the unsoundness of the system became apparent. The creditors of the aviados demanded real money and refused to ship more goods. The price of rubber remained low and credit men were frightened. The aviadors' assets proved to be large

debit balances with Upriver aviados—paper profits only that did not contain one cent of asset value. Old established houses commenced to totter and then fall. One after another was forced into liquidation, until the list had grown to many scores of failures in Pará alone, with the enormous sum of $20,000,000 involved.

And even then it was difficult for the improvident Brazilian to think of economy. The habit of borrowing had become second nature, and only the cessation of credit brought him at last to his senses.

Finally, Northern Brazil thoroughly realizes that the day of retrenchment has come. Heretofore a financial stringency has been evaded by a call of distress for more rubber, and more rubber always saved the situation.

If any other city in the world had suffered from an avalanche of failures and compositions such as has descended upon Pará, business would have stopped for years and everybody been in mourning. In Pará, however, there is but little gloom and the calamity howlers are mostly on the outside. How extensively the business houses have suffered is shown in the following statement obtained from one of the banks there.

LIST OF FAILURES AND COMPOSITIONS IN PARA FROM JANUARY 1, 1913 TO DECEMBER, 1913.

FAILURES.

Paulo Da Cunha Ferreira	$17,000.00
Campos Guimaraes	115,000.00
Figueredo & Silva	321,000.00
Pereira, do Amaral & Ca.	46,000.00
Antonio Jose de Carvalho	71,000.00
Monteiro Goncalves	67,000.00
J. Franco & Ca.	207,000.00
Cardoso, Pinho & Ca.	162,000.00
Cardoso & Pinho	72,000.00
Nunes Sobrinho & Ca.	44,000.00
J. R. Da Silva	21,000.00
Caesar de Moura, Serra & Ca.	66,000.00
A. Tasso	22,000.00
Van Dick & Tocantins	200,000.00
Martins Abreu & Ca.	800,000.00
B. Antunes & Ca.	3,500,000.00
Cordeira Neves & Ca.	850.00
Francisco Alves Ferreira & Ca.	15,500.00
Mello & Ca.	3,000,000.00
Pereira, Bessa & Ca.	4,700,000.00
Julio Pereira & Oliveira	300,000.00
A. J. de Sousa Pereira	250,000.00
Martins & Alvoeira	250,000.00
A. F. Dias	5,500.00
Silva Cunha & Ca.	188,000.00
Motta, Nogueira & Ca.	48,500.00
A. Meirelles & Ca.	774,500.00
Bastos & Rocha	118,500.00
Cristovan, Spinelli & Ca.	10,000.00
Dias & Ca.	127,500.00
Alexandre Ferreira & Ca.	45,000.00
Total	$15,564,850.00

AGREEMENTS WITH CREDITORS.

Serra & Ca.	$136,000.00
Apparicio Mattos	82,500.00
Costa Pinho & Ca.	89,000.00
Gomes de Oliveira & Ca.	72,000.00
J. Vidinha & Ca.	267,000.00
Jose Furtado de Mendonça	1,800,000.00
Braga Sobrinho & Ca.	728,000.00
Jose Alvoeira Gomes Araujo	45,000.00
Cunha Cerqueira & Ca.	162,000.00
Leopold Wolf & Ca.	206,000.00
Silva Ribeiro & Ca.	145,000.00
Cerdeira & Bordallo	27,500.00
A. Moraes & Ca.	63,800.00
Mathias, Balin & Ca.	22,500.00
La Rocque, Frota & Ca.	477,000.00
J. Moreira & Ca.	30,500.00
Total	$4,353,800.00

Failures	$15,564,850.00	
Compositions	4,353,800.00	
Grand total		$19,918,650.00

RESUME OF PRINCIPAL BANKS, BANKING HOUSES AND EXPORTING HOUSES INTERESTED IN THE FOREGOING FAILURES AND COMPOSITIONS, IN PARA, 1913.

London and Brazilian Bank, Limited	$19,000.00
Agencia do Banco do Brazil	4,000,000.00
Banco do Pará	212,000.00
Banco Commercial do Pará	450,000.00
Banco de Credito Popular	300,000.00
J. Marques	80,000.00
Moreira, Gomes & Co.	225,000.00
Zarges, Berringer & Co.	180,000.00
General Rubber Co. of Brazil	10,000.00
Pires, Teixeira & Co.	20,000.00
Total	$5,416,000.00

THE GOVERNMENT'S HEAVY EXACTIONS.

While the business houses are doing their part the government still exacts the old-time heavy rubber tax.

The official value or "Pauta" is fixed every week on the average of the prices paid. Fine rubber, coarse rubber, and caucho are subject to the following duties, viz.: 19½ per cent.

Young *Hevea* on Tapajos Plateau.

on the official value, 2½ per cent. of the product of the above 19½ per cent. towards keeping up the Santa Casa Hospital, ⅜ of 1 per cent. on the official value towards the erection of an exchange building (which, by the way, was started and has since been taken down), 1 per cent. on the official value payable to the municipality.

Fine rubber in sheets, coarse washed, and caucho washed, pay: 18 per cent. on the official value, 2½ per cent. of the prod-

uct of 19½ per cent. as above, ⅜ of 1 per cent. as above, 1 per cent. as above.

Federal district tax: 18 per cent. on the official value of all grades.

BOLIVIA'S SHREWD MOVE.

As against this there is the very shrewd move on the part of Bolivia, as shown in the following law passed early in December. This edict was the result of a law passed by the Brazilian Government putting a heavy tax on all Bolivian rubber. Bolivia in turn passed a law that put the export tax at from two to six per cent. ad valorem. This naturally increased the shipments of Bolivian rubber and incidentally caused much Brazilian rubber to be sent into Bolivian territory to appear later as Bolivian rubber.

Sessions Hall of the National Congress,
La Paz, November 13, 1913.

Juan M. Saracho,
Atiliano Afaricio,
J. V. Zaconeta, S. S.
Juan Alvarado, D. S.,
Rene Renjel, D. S.

I, therefore, promulgate the decree in order that it may be executed as a law of the Republic.

Given in the City of La Paz, the 18th day of November, 1913.

Ismael Montes.

Casto Rojas,
Minister of Agriculture.

Certified:
Manuel A. Elias,
Under Secretary of Agriculture.

Experiment Station—*Hevea* Planting—State of Para.

REPUBLIC OF BOLIVIA.

Official Registry of Laws, Decrees, Resolutions, Supreme Ordinances and Other Documents.

La Paz, December 5, 1913.

Ismael Montes, Constitutional President of the Republic:

Inasmuch as the National Congress has sanctioned the following law, the National Congress decrees:

Article 1. The export tax on india rubber will be collected by all the custom houses of the Republic, in accordance with the following scale:

(a) When the quotation of rubber is from 25 to 36 pence, the tax shall be 2 per cent. ad valorem.

(b) The tax shall be 4 per cent. when the price ranges between 37 and 48 pence.

(c) The tax shall be 6 per cent. when the price exceeds 49 pence.

Article 2. The same scale of percentage shall apply to the export of the ordinary classes, Sernamby, Mollendo and Caucho, with the rebate of 30 per cent. on the value fixed for fine rubber.

Article 3. In case the tax imposed by neighboring foreign custom houses shall be less than that of Bolivia, the Executive Power can make a proportionate reduction in the rubber export duties.

Article 4. In fixing the official value, there shall be taken 70 per cent. of the London market quotations, which are transmitted every fortnight by the Bolivian consulate in London.

Communicated to the Executive Power for official action.

WHAT PROMINENT BRAZILIANS SAY ABOUT THE SITUATION.

There is a beautiful island in the Caribbean, not so very far from the mainland, where those who live on the Great River have been accustomed to spend a few months each year. They have built themselves tiny bungalows, and they resort to a little hotel where Portuguese is spoken, and where they are disposed to talk much more freely on home matters than they would either in Pará or New York.

One of the first men I met there was one who formerly sent his own boats for trade far up the river, who, with his associates, worked great stretches of forest for rubber, but who sold all of his interests during the rubber boom. Since that time instead of departing to Paris as is customary, he had quietly tried to bring his compatriots to a realizing sense of the disaster foreshadowed by such high prices, together with the coming flood of plantation rubber from the East. He was far from optimistic. Indeed, he was distinctly gloomy.

"Individually," said he, "I care not. But my heart bleeds for my country. Are we to see the grass growing in the streets of Pará? Is Manáos, that wonderful young giant of a city, that oasis of civilization in the midst of the jungle, to be a heap of ruins? Will these two cities, like Tyre and Sidon of old, be but places where fishermen do spread their nets? The fault is ours? Perhaps. Yes! we should have foreseen this

evil day. Indeed, if you will look back through the files of our newspapers and read many of our governmental reports you will find the danger and remedy explicitly set forth. But in a new country, who believes in conservation? Who plans for the future? Did the North Americans save or destroy their wonderful pine forests? Did your wheat farmers conserve the soil? Is not the farming country of New England stripped of its fertility? The vastness of your resources, the influx of laborers and your marvelous industrial development are all that have prevented you from being just as we are.

"Great efforts were made by us—greater than the world knows—to prepare for the future. The efforts, however, appear to be in vain. We had the desire, the knowledge, but neither capital nor labor to carry out our plans. I acknowledge that our cities should have been made as safe as the Americans made Havana; that our experiment-station and plantations should be as healthy as the Panama Canal Zone. But what does the world know of the demands of the federal government for its share of the rubber millions? Our most capable and enterprising business men were British, American, German and Portuguese, who were with us only to gain a competence and then go home. None thought of Pará or Manáos as a home; therefore they were not interested in the future—in our future.

"Concessions! yes, they took them greedily and we paid 'through the nose.'

"We should have colonized and we did institute many efforts to that end. In Sao Paulo we were successful, but to get settlers for the rich lands bordering the Amazon we signally failed.

"Do you recall some five years ago sending me a man who represented a great syndicate that wished to colonize a huge tract up the river and that had millions back of it? I wrote you guardedly that nothing could be done, for you to advise your friends that the project was dangerous. I tell you now that government officials in their folly, scented in it a revolutionary plot, and those who would have helped us were given the cold shoulder.

"We can see today that the money spent on the Madeira-Mamioré railroad, if put into rubber plantations down the river, and that the cost of our Port of Pará improvements, if invested in the same manner, would have been our salvation. But no foreign bonds could be floated for planting rubber, particularly when we were getting constantly increasing quantities of rubber from up the Amazon. Every attempt to plant on any considerable scale was either frowned upon or reported against. We sent commissioners abroad and pigeon-holed their reports.

ROADWAY TO FLOATING DOCKS.

"When the English bought a rubber plantation at Santarem, they should have at once been granted a bonus, medical attendance and if necessary supplied with laborers and the export duty thrown off.

"When Commandante Benedict came to us year after year, genial, friendly, alive with wise suggestions, ready to foster great enterprises, we ought to have helped all that we could. His wireless plant between Pará and Manáos, his rubber plantation, all should have had the fullest help, as they were pioneer enterprises which, once successful, would inevitably bring in others.

Courtesy of International Union of American Republics.

A PART OF THE DOCK SYSTEM, PARA.

"The government spent millions of dollars in World's fairs and rubber exhibitions, gigantic pelles of Pará rubber, pyramids of Coarse, heaps of Caucho. To what end? Just to show that we were producers of crude rubber, which the whole world knew. A few thousand pounds of cultivated rubber would have been infinitely more to our credit. That money would have equipped us with the finest experiment stations, with experts in rubber culture, and might have saved the day. But no! It was spent for the show."

HOW UP-RIVER PLANTATIONS WOULD BE HANDICAPPED.

The foregoing was from one who was educated in Europe and who had traveled extensively. Shortly after he left for New York. I was fortunate in meeting a man whom I had known in Manáos. His interests lay in the boats he owned for Up-river trading and, of course, his principal freight was rubber. He was not a Brazilian but a Portuguese and reminded one of the pictured types of the old Portuguese navigators, who, before the English, Spanish or French, sailed uncharted seas and explored unknown lands.

Said he—"I have been rubber gatherer, aviador, ship owner. I have seen rubber selling at fifty cents a pound and for three dollars a pound. There have been the ebb and flow of the tide of price, but I have always felt that the average would be enough to warrant the continuance of gathering.

"The planting of rubber up the river does not seem to me to be practical. If it is to be done anywhere on the river it should be near Pará. There is, of course, the possibility that in the Peruvian or Bolivian Montaña a better grade could be cultivated than on the lower levels. But the lack of labor there, the cost of freights in carrying provisions up to the camps and the cost of bringing the rubber down all militate against it. Even if there were laborers that would work for twenty cents a day, what with the cost of getting them there, housing, feeding and caring for them, and with the freight cost on the rubber and the export tax, I do not see how we could compete with Ceylon and the Malay States.

"I understand the cost of rubber from the Middle East is say a shilling a pound. Our product for the reasons named would be certainly double that. Of course, our Up-river fine is the best rubber produced and it has and will long have a market. I do not believe, however, as some do, that it cannot ever be equaled. Scientific methods in time always triumph over the non-scientific. For that reason I am confident that not only will the great plantations in Asia for a time distance all other means of supply, but they in turn will be distanced by the cheap and abundant production of rubber made synthetically.

"The Amazon will not stop flowing whatever the price of rubber," he continued whimsically. "There need be no famine. Our laborers will drift in from the remote seringals when it does not pay to tap trees. We have cattle, Brazil nuts, and a host of yet undeveloped resources. Instead of buying our food stuffs we shall be able to raise them. It may be that the big steamers will come less frequently up the Amazon, that the Solimões will be only navigated by small Brazilian boats as of yore, but new industries will in time develop. The outside world is too big, too aggressive, too rich to long neglect the valley of the Amazon, which is destined one day to be the garden spot of the earth. Some day, perhaps not in my time, its cane fields will be the greatest; its cocoanut groves the largest and most prolific, and perhaps its rubber plantations second to none.

"I had hoped much for the *Defesa da Borracha*. It seemed well organized and the reports from its various commissioners should certainly be of great value. But that has now been abolished and we are where we were before, only poorer, and facing the likelihood of greater rather than lower taxation."

One who has been a resident of Pará for many years, who has journeyed up the Amazon, the Madeira and their affluents, said to me: "Notwithstanding the fact that in the last thirty years Northern Brazil has paid Southern Brazil 350 millions of dollars in taxes, the South now practically refuses to do anything to alleviate the suffering in the Amazon region. So sink we must.

"From being the great shippers of rubber we shall be small ones. Some of the best 'fine' will always find a market. Then there is Maniçoba which can be laid down in New York for thirty cents a pound. That will not be wiped out. But the great industry of the Amazon is doomed."

THE BRAZILIAN STILL IN THE RING.

The foregoing pictures the Brazilian of the past, to whom money came with little effort. Those who observe, however, are not slow to see in the present crisis a new type of business man on the Amazon. At last the true character of the

PACKING RUBBER FOR SHIPMENT, PARA.

Brazilian has been brought out by his distress. The errors of the past have been willingly acknowledged, and a remedy has already been prescribed and applied by the business men, who are standing their ground and fighting in the belief that Pará

RUBBER BOXED FOR SHIPMENT, PARA.

rubber will regain its former prestige. It is a brave fight, and is worthy a world's admiration for the pluck of it all. Business is now on a cash basis, and the man who formerly asked for credit now presents cash or good collateral. The people are rising to the exigencies of the occasion, and everywhere there is

ample evidence that a good fight will be put up to save the situation.

The Amazon Valley produces little of the food consumed. It is imported at an extremely high cost, and it is this food question that is receiving the earnest attention of thinking Brazilians.

Rubber Packed Ready for Shipment, Para.

In the "Folha do Norte," of Pará, March 4, 1914, the following notice appears:

"The Mayor of Itaituba, Brazil, gives notice to those whom it may interest that from January 20 to May 20 free passage will be granted to those persons who may wish to devote themselves to the cultivation of cereals and to planting coffee, cotton and tobacco. Premiums will be awarded to those who show the best results six months after settlement, the prizes including free grants of land in the locality, with medicines and medical treatment gratis. Signed by Raymundo Pereira Brazil, Mayor of Itaituba, 46 Rua da Industria."

Avilino Chaves, a prominent rubber merchant of Guanabara, district of Acre, is distributing seeds and encouraging the planting of beans, corn and rice. The captains of the river boats say that never in the history of Amazon rubber has there been so much planting and cultivation along the rivers.

The *seringueiro* has never been a planter in any sense of the word heretofore, but now he has risen to the occasion and has a little patch of corn, beans and mandioca growing near his *barracão*.

The aviadors of Pará and Manaos have sent word to their various agents that they are only allowed to give credit for supplies to the *seringueiro* of good standing, and that he must return with the rubber at the end of 15 days. Thus the rubber gatherer can continue in his livelihood as before, but must work harder. More responsibility will be demanded of him under the changed conditions—which will surely produce better results. This will put an end to the business of the piratical *irregatao*, a traveling trader who seduces the *seringueiro* into selling him the rubber that should go to the aviado to pay for credited supplies.

THE PROBABLE RUBBER SHORTAGE.

There will be a shortage this year no doubt. There is a shortage of 3,000 tons now, and when the season closes this will probably have increased to 4,000 tons, but that is only 10 per cent. of the total—a mere nothing, in fact, when one thinks of the disturbances going on which tend to curtail production. It is really marvelous that the production is so large. Next year the indications are that the product will fall short of this year. Ten thousand Cearense have gone down the river to their homes. Ceara has a bumper cotton crop, and there will be a shortage of hands to harvest it; consequently there will be no necessity for the Cearense to look for work away from home.

It is admirable to see a stricken people face adversity with calmness and willingness to accept the changed conditions. The state and federal governments are in serious financial difficulties. Employes have not received their pay for eighteen months. There is open denunciation of the unscrupulous politicians, whose greed and selfishness have brought their country, state and people to the present bankrupt condition. There are some, of course, who talk of uprisings to rid the government of politicians. But that does not stop the rubber gatherer from doing his daily task. In the meantime, many practical reforms are quietly being instituted, and Pará is getting ready to ship better rubber, and hoping to grow it in competition with the rest of the world.

THE MENDES MACHINE.

All of the spectacular and expensive suggestions brought forward by the *Defesa da Borracha* for maintaining the supremacy of Pará rubber have dropped out of sight. These had finally crystallized into extensive washing factories, none of which were installed in Pará. The only system that has taken root is the J. A. Mendes process for smoking rubber, which is already used in many *seringaes*. The apparatus used is very simple. It consists of a cylinder, mounted upon legs over the usual smoking cone. As the latex is slowly poured over the cylinder it is revolved so that the smoke rising from the cone coagulates the latex into a thin film of rubber. When a sufficient number of films—one above the other—have been coagulated by this method, the mass is cut off and is in the form of a thin slab of clear, clean, perfectly cured fine Pará rubber. The illustration shows the machine in the foreground, but without the smoking cone. In the background is piled the finished product.

The Mendes Machine for Smoking Rubber and Its Product.

CATTLE RAISING AND RUBBER PLANTING.

One of the economic problems confronting northern Brazil is the food supply. Now everything, with the exception of farina, is imported. Xarque, or dried meat, imported from Argentina, costs 60 cents a pound, while fresh beef can be bought for 45 cents.

Cattle raising is an industry that is comparatively unknown and for which the Amazon Valley offers many natural advantages, tho there are some difficulties to contend with. In the first place, pasture must be made. This involves clearing of the land and fencing. The selection of the proper grass for planting is more complicated than it would seem at first thought. To the layman all grasses are alike, but that is not so. When a definite object is to be obtained an intimate knowledge of

the characteristics and habits of the grasses is very necessary.

Mr. Andre Goldei, a co-worker with the late Doctor Huber on this subject, has devoted many years to the study of the various grasses indigenous to northern Brazil. After examining and rejecting more than 100 such varieties, several varieties of foreign grasses were sent for and placed under observation. The result was the discovery of a grass which acclimatized itself readily and developed desired characteristics. It was the genus *Parpalum Dilatatum* for high land and *Parpalum Virgatum* for the low land that gave the sought for results.

This grass is of the bunch grass variety that is easily planted by simply inserting one of the tubers in a small hole in the ground made by a pointed stick. It is not necessary to cover the holes. The grass grows naturally to the height of only 18 inches, and when pastured it remains about 6 inches in height. It prevents the growth of weeds and bush, without growing to a great height as is the case with the indigenous grasses. Being

Bunch Grass to be Grown with *Hevea* Rubber.

a bunch grass with comparatively short roots it has been demonstrated that rubbers can be grown with it successfully, thus eliminating the costly clearing operations. The grass itself is so succulent that cattle pastured among young rubber trees prefer the grass.

This system of a pasture cover is being used in the fruit orchards of Europe with marked success. Will it not solve the tropical problem of costly clearing in rubber culture when the spontaneous growth and high cost of latex make close clearing prohibitory?

It should be remembered that gutta percha is growing scarcer every year, and that balata is in many ways taking its place. With the exhaustion of the supplies in Venezuela and the Guianas will come an increase in price, and an exploitation of the great balata reserves bordering on the Amazon.

Perhaps the most hopeful sign is the interest that certain capitalists are taking in banana raising. There are literally millions of acres of wonderful banana lands close to deep water in the State of Pará. Once the government is forced to keep its hands off such a project the Brazilian banana will be found in New York and London, a close competitor with that grown in Central America.

With the whole tropical world hunting for good cocoanut land it will not be long ere cocoanut-growing on the Amazon will assume large diminsions. There is fine land, an ideal climate—indeed, everything needed to make the crop a success.

In Pará the stores are well stocked with goods, and sales are going right on. All of the civil officers receive—not money (salaries are from one year to two years behind) but an acknowledgment of indebtedness. This is taken as cash by the storekeepers, and turned back to the government in payment of duties, taxes, etc.

Laborers who in flush times handled rubber at $4 a day are today contentedly working for 60 cents a day. The people are surprisingly happy. They need not starve, they cannot freeze, and the city is unusually free from disease.

PROPOSED EXPOSITION TO PROMOTE TRADE IN CHILE.

The Chilean American Permanent Exposition Co. has been organized at Santiago, Chile, with a capital of $20,000 United States gold, to establish a permanent exposition of American products at Santiago. The exposition building erected for the Chilean Centennial Exposition of 1910 has been placed at the disposal of this company by the Chilean Government, and it is proposed to rent to American interests space in this building at so much per square foot per annum, including care, explanation, demonstration and operation of articles and machinery left on exhibition. The manager, A. Hamilton West, is visiting the United States, to confer with manufacturers and others who may be interested, and inquiries regarding this project should be directed to him in care of the Chilean Consul General, New York.

RUBBER CULTIVATION IN BRITISH GUIANA.

A colonial report as to agricultural conditions in British Guiana in 1912-13, shows the area planted in rubber is 3,080 acres, of which 2,700 are in *Hevea* and the remainder in *Funtumia elastica*, *Castilloa elastica* and *Sapium*.

There was a relatively active demand for *Hevea* plants during the year, 64,000 small trees having been sold by the Department of Science and Agriculture, while the private import of stumps numbered 114,000. Seeds were also imported from Surinam and the East.

Experimental tappings of *Hevea* trees planted during 1907-08 and 1908-09 gave satisfactory results as to the quality and quantity of the yield. Cultivation of rubber at the government experiment stations was systematically carried out; a large number of balata trees being likewise planted.

GENERAL FOREIGN TRADE OF THE LEADING TRADING COUNTRIES.

STATISTICS covering imports and exports of five great trading countries, viz., the United Kingdom, United States, Germany, France and Belgium, are now at hand and make interesting reading. From the figures which are shown below it will be seen that the exports of the United States last year were about equal to those of the United Kingdom and Germany, but that the increase in exports was only half the increase of the United Kingdom and less than one-third of the German increase. In the volume of importations the United States shows hardly more than one-half that of the United Kingdom, and about 70 per cent. of Germany's imports.

IMPORTS OF LEADING COUNTRIES.

		Percentage compared with 1912.
United Kingdom.....	3,296,890,000	+ 4.0
United States.....	1,793,038,480	+ 1.5
Germany	$2,629,285,000	+ .03
France	1,701,675,000	+ 3.2
Belgium	916,725,000	+ .63

EXPORTS OF LEADING COUNTRIES.

United Kingdom.....	2,627,305,000	+ 7.2
United States.....	2,448,576,614	+ 3.5
Germany	$2,478,150,000	+ 11.1
France	1,375,075,000	+ 2.3
Belgium	715,365,000	— 6.2

Dr. Jacques Huber's Busy and Useful Life.

THE March issue of THE INDIA RUBBER WORLD contained a mention of the sudden death of Dr. Jacques Huber, director of the Museu Goeldi, of Pará, which occurred in that city on February 18. Editorial mention was also made in the same issue of his great services to the rubber industry of Brazil, his many contributions to the literature of rubber botany and of the great sense of loss which will be felt not only in the Amazon country but everywhere where men are interested in the development of rubber production. It was not possible at that time to give as complete a story of his life as its exceptional usefulness demanded. Here is a more detailed account which will be of interest to his many friends.

Dr. Jacques Huber was born on October 13, 1867, at Schleitheim, Canton of Schaffhausen, Switzerland, being the son of the Rev. Emanuel Huber. In the year 1870 his parents removed to the city of Schaffhausen, where he attended school until his graduation in 1887. He then studied natural history at Basle, passing the teachers' examination in 1890. In the autumn of the same year he went to Montpellier (France), where he devoted himself wholly to the study of botany, under the guidance of Professor Flahault, with whom he maintained intimate relations up to the end of his life. Dr. Huber remained in Montpellier until August, 1893, meanwhile visiting Basle in the autumn of 1892, where he gained the title of doctor (with distinction). From Montpellier he went, in 1894, to Geneva, becoming assistant at the Herbier-Boissier Botanical Museum.

Early in the year 1895 he received, through Professor E. A. Goeldi, a call—which he accepted—from the newly reorganized Pará "State Museum of Natural Science and Ethnography" (now "Museu Goeldi"). In the following July he arrived at Pará and assumed the post of Director of the Botanical Section of the Museum. His first work was the laying out of the botanical garden, which, under his care and direction, was developed into one of the most attractive sights of the city. Moreover, during the earlier period of his work in Pará he undertook numerous scientific journeys to different parts of Amazonia and northern Brazil. A number of his trips of exploration were taken in the company of Dr. E. A. Goeldi. In others he was accompanied by other prominent Brazilian naturalists. From the year 1895 to 1905 he found time for one or more of these interesting and important excursions every year. During this time he visited the "Contestado," the Franco-Belgian frontier subsequently awarded to Brazil. He also visited the rivers Capim, Guama, Aramã, Purus and lower Acre. These are but a few of the many parts of Brazil which he explored on these occasions.

In these journeys Dr. Huber, in addition to his botanical and botanico-geographical studies, devoted much attention to hydrographic questions, on which he wrote a number of articles. Among his contributions to various Brazilian and European publications based on his observations in his different travels are the following: "Vegetation of Cape Magoary and the Atlantic Coast of the Island of Marajo," "Contribution to the Physical Geography of the Western Part of Marajo," "Vegetation of the Valley of the River Purus."

One of the most important works of Dr. Huber during the years 1895-1905 was the "Arboretum Amazonicum," the pictures in which were almost exclusively prepared from photographs taken by the author. Unfortunately, lack of time and money prevented the issue of more than four volumes out of the ten which had been contemplated. Other important contributions by him include "Elements of Amazonian Flora," as well as "Ceara Plants." The "Herbier-Boissier Bulletin" contained some of his articles upon *Hevea* and other rubber plants, to which he subsequently devoted so much time.

At the end of March, 1907, upon the return to Europe of Dr. E. A. Goeldi, Dr. Huber was appointed Director of the Goeldi Museum. The time and energy required for his administrative duties forced him to give up his scientific journeys—a fact which he regretted all the more as the Pará government made more and more frequent calls upon his knowledge and experience as to rubber cultivation. Some brief excursions in 1907 and 1909 (particularly those to the new agricultural experimental station at Peixe-Boi, on the Bragança line) afforded him relaxation and increased his store of knowledge.

Notwithstanding the burden of his official duties, he found time for important botanical work, such as the continuation of the "Elements of Amazonian Flora"; while the rich botanical collections which Señhor F. A. Ducke, the entomological expert of the museum, brought back from his numerous journeys, furnished subjects for various treatises—as "Plantae Duckeanae" and other compilations.

The chief work of his later days was "Amazonian Woods and Shrubs," the first part of which summarized the information gathered during his explorations as to the distribution of Amazonian flora.

In the spring of 1911 Dr. Huber went to Europe to take part in the London Rubber Exhibition as well as the Turin International Exhibition, as representative of the State of Pará. Immediately afterwards, and likewise acting on behalf of the State of Pará, he commenced a journey to the East, for the purpose of studying the rubber plantation industry in Ceylon, Malacca and Dutch India. Early in the summer of 1912, after more than a year's absence, he returned to Pará. During the return voyage he had found time to elaborate his comprehensive and important report on "The Present State of the Cultivation of *Hevea Brasiliensis* in the Chief Rubber Producing Countries of the East," which was published by order of the Governor of Pará. In September, 1912, by instructions of the government, he undertook another journey, to attend the New York Rubber Exhibition.

These extensive travels and the labor they involved finally told upon his health, a matter to which he was disposed to give but scant attention. In October last he was seized with intestinal inflammation, and while the first attack passed, a relapse took place in January the gravity of which was apparent to his friends. As a last resort he was operated on for appendicitis—but unsuccessfully, passing away on February 18 last. It was undoubtedly Dr. Huber's devotion to his work that cut his life short at the comparatively early age of 47.

Owing to the esteem in which the late Dr. Huber was held in his adopted city great regret was expressed at his death by the chief officials, from the Governor downwards; and the state accorded him the exceptional honor of defraying the funeral expenses. The coffin was borne to the hearse by Dr. Carlos Silva, representing Dr. Eneas Martins, the Governor (absent through indisposition), and by the secretaries of State then in Pará. Other prominent personages attending the funeral included Dr. Dionysio Bentes, Mayor of Belem; Dr. Diodoro Mendonça and Lieutenant Heraclito Gurjas, cabinet officials; Colonel Calheiros de Lima, Dr. Martins Pinheiro, Dr. Raymundo Vianna, Señhor Franz Berringer, Señhor Adolpho Ducke, Dr. O. Labroy, and many others.

When the sad news of his death reached the headquarters of the Pará Commercial Association the building was immediately closed by order of the president. The members selected to attend the funeral on behalf of the association were: Señhores

José Amando Mendes, Benedicto Duarte Soeiro and Mario Jorge de Pinho e Castro.

The papers of Brazil all speak in the highest eulogy of Dr. Huber and his great services to the City of Pará and its museum, and beyond that to the whole Amazon country. They mention in detail his contributions to technical—particularly botanical—literature, which, counting his books and articles in various publications, number over a hundred; and they all declare that his death is an irreparable loss to the science of rubber botany, and particularly to the famous Goeldi Museum,

GRAVE OF DR. JACQUES HUBER.

of which for so many years he was the dominating spirit. In regard to the feeling entertained for him as a man, the following paragraph from one of the Pará papers is informing:

"His co-workers at the museum, down to the lowest day-laborer, have expressed their grief at the loss of the soul of the institution—a self-sacrificing head, a loyal colleague and a faithful friend. They all feel that a really great and good man has passed away in the person of Jacques Huber."

He was married in 1901 to Dona Sophia Muller, who, with a daughter aged 10 and two sons, 8 and 3 years of age, survives him.

PERNAMBUCO RUBBER EXPORTS.

The total rubber exports from Pernambuco were: 1910, 176 tons; 1911, 70½ tons; 1912, 96½ tons. For the last named year the separate destinations were: Germany, 37½ tons; Great Britain, 19 tons; France, etc, 40 tons. The falling off as compared with 1910 was largely in the exports from Pernambuco to North America.

CASUALTIES TO BRAZILIAN RUBBER STEAMERS.

Several casualties are reported to Brazilian river steamers carrying rubber. On January 13 the "Ajuricaba" sank in eight fathoms with a cargo of rubber estimated at the equivalent of $150,000. Later the "Itucaman" went down at Manaos with 80 tons of rubber worth about $125,000.

RESOLUTIONS ON THE DEATH OF MR. VAN VLIET.

At the meeting of the Board of Directors of Goodyear's India Rubber Glove Manufacturing Co., held on March 26, the following minute, drafted by a committee appointed to present suitable resolutions referring to the death of Mr. Van Vliet, was adopted:

"Here in its appropriate place in the Minute Book of the Board of Directors of the Goodyear's India Rubber Glove Manufacturing Co., let us record those facts and qualities which relate most closely to the life of our deceased director and treasurer, Clinton Van Vliet, who passed from our midst on February 6, 1914. Born in Plainfield, New Jersey, of sturdy Holland ancestry, he was educated there in the public schools, from which he graduated with high honors, and he soon thereafter entered business life in New York City. In 1870 he became office manager of the Goodyear's India Rubber Glove Manufacturing Co., and afterwards treasurer, which position he retained to the time of his death. He was also a director of the company from October 30, 1891, to February 6, 1914.

"Ever courteous, beloved by his associates in the rubber industry, painstaking, keen and alert in his business dealings, zealous for the welfare of employes under his charge, this Board has lost in him a faithful co-worker and friend."

Mr. F. F. Schaffer was elected treasurer, and Mr. John D. Carberry was elected a director of the company, to fill the vacancies caused by Mr. Van Vliet's death.

ANOTHER VICTIM OF SYNTHETIC RUBBER.

It will be recalled that about six months ago—or, to be more exact, on the morning of September 15, 1913—Mrs. Gottschalk, the wife of Dr. Louis Gottschalk, manager and vice-president of the Alembic Process Co., was killed in the company's laboratory, at Sewaren, New Jersey, by the explosion of a steel container in which there was a mixture of chemicals used in synthetic rubber experiments.

Another investigator doing the same sort of research work has met his fate in the same way in the same laboratory.

Dr. Gottschalk, undeterred by the tragic fate of his wife, determined to continue his search for the chemical construction of rubber, and he associated with him his son-in-law, George Titus, and a chemical engineer, Clifford D. Meeker. For several months past they have been engaged in the company's laboratory in their scientific experiments. On March 26, while the three were in the laboratory a retort containing a mixture of chemicals exploded, instantly killing Mr. Meeker and seriously injuring Mr. Titus, who, however, escaped death because at the time he happened to be screened by some steel plates.

Notwithstanding these two tragedies, the two survivors of the last explosion declare that they will continue with their experiments.

CATALOGS OF STANDARD SIZE.

A committee appointed by the Technical Publicity Association, of New York City, has been investigating for the past year and a half the subject of standardizing the size of catalogs, the object being to make this particular form of publicity of the greatest possible value. A file of catalogs carefully arranged is often decidedly valuable to the merchant or his purchasing agent. and uniformity of size would not only assist materially in such an arrangement but would probably lead to the preservation of many catalogs which are now, because of their inconvenient size or form, either misplaced or lost. As a result of its investigations the committee recommends as standards for all catalog purposes sizes 6 x 9 and 8½ x 11 inches, with 8 x 10½ inches for bulletins, and this recommendation has been accepted by the association, a large number of companies now using letterheads of this size and bulletins being filed with correspondence. The American Society of Mechanical Engineers and the American Institute of Architects have also had committees engaged in similar investigations, each of which recommends the 8½ x 11 inch size for both catalogs and bulletins.

GOLD COAST RUBBER AND WATER.

A BUYER of Gold Coast Rubber in a city some hundreds of miles from New York, recently brought to our attention so interesting a tale of Free water in casks of that sort of rubber that it is well worth attention. The rubber came to New York and was promptly re-shipped to the buyer. Then, according to custom it was sent to the factory, tared and an affidavit being made, the difference was allowed as the amount of rubber received. The story of the manufacturer is related simply to point out the lack of uniform system in nearly all crude rubber transactions and in the hope that the publication of the facts will lead up to a more modern method. He relates his experience as follows:

"When my attention was called to some huge shrinkages in Gold Coast, some of them running over 60 per cent., I found that the man in charge was drawing the water out of the casks without any report, no matter how much of it was present.

"We had more of the same rubber due us, and I took up the question immediately with each of the sellers, insisting that the rubber should be grossed and tared at the same time and same place, the same as Para. Three agreed to my suggestion and the rubber was delivered accordingly. After much difficulty the other seller agreed that the lots that were on the dock ready to be delivered should be weighed in the way specified, but demurred from accepting affidavits on previous deliveries.

"I enclose a list of the weights, without names, of some of the deliveries, because I want to make this absolutely impersonal. As I told you in New York, I visited some of the warehouses in Liverpool and noted in every one of them that there was a hose and a faucet.

WEIGHTS OF 10 CASKS OF GOLD COAST LUMPS.

Free Water 9 to 27 Pounds.

	Billed Weights.			Received Weights.				
Cask No.	Gross.	Tare.	Net.	Gross.	Tare.	Rubber.	Water.	Proper Gross.
1	1,202	155	1,047	1,195	160	1,024	11	1,184
2	1,216	154	1,062	1,215	157	1,050	8	1,207
3	1,195	148	1,047	1,180	152	1,024	4	1,176
4	420	75	345	418	82	336	..	418
5	1,428	263	1,165	1,428	268	1,134	16	1,412
6	1,347	261	1,086	1,348	266	1,073	9	1,339
7	1,424	247	1,177	1,402	252	1,150	..	1,402
8	1,471	266	1,205	1,470	272	1,171	27	1,443
9	1,370	267	1,103	1,348	272	1,064	12	1,236
10	1,205	275	930	1,203	275	938	..	1,203
	12,278	2,111	10,167	12,207	2,156	9,964	87	12,120

WEIGHTS OF 9 CASKS OF GOLD COAST LUMPS.

Free Water 22 to 130 Pounds.

	Billed Weights.			Received Weights.				
Cask No.	Gross.	Tare.	Net.	Gross.	Tare.	Rubber.	Water.	Proper Gross.
1	1,518	284	1,234	1,511	286	1,121	104	1,407
2	1,566	262	1,304	1,566	264	1,203	99	1,467
3	1,315	251	1,264	1,501	256	1,183	62	1,439
4	1,462	283	1,179	1,442	286	1,121	35	1,407
5	1,361	241	1,320	1,552	244	1,294	14	1,538
6	1,608	272	1,336	1,605	274	1,211	120	1,485
7	1,481	273	1,208	1,475	275	1,164	36	1,439
8	1,794	257	1,537	1,789	260	1,399	130	1,659
9	1,445	264	1,181	1,427	267	1,138	22	1,405
	13,950	2,387	11,563	13,868	2,412	10,834	622	13,246

"I had an amusing correspondence with this last seller, who insisted that the old method of weighing was correct; that is, that we should gross the casks on the wharf, and then they should allow us for whatever tares we found; so I put this example up to him:

"Supposing that he should ship to us from Liverpool a tight oil barrel in which should be placed one lump of Gold Coast weighing ten pounds, and there should be two hundred pounds of water, how much rubber should I pay for? The only answer he would make was the same old answer—that we should pay for two hundred pounds of water and ten pounds of Gold Coast, and because I kept putting it up to him stronger and stronger, he finally got peevish, and so I dropped the matter. However, I have noticed since that they have credited the water.

"I am emphasizing this because it illustrates so clearly the fact that there is no uniform method, that there are no uniform contracts, that there are no standards of nomenclature, and that each case is settled with an importer by the manufacturer, according to the particular force put into the matter by the manufacturer.

"My belief regarding all of such shipments of Gold Coast Rubber is that every one of the New York people is innocent, that it is purely false packing. It is the Liverpool representatives in these New York houses who do not look after the manufacturers' interests and see to it that false packing of water does not exist. For such neglect they and they alone are responsible. Of course we can only look to the people that sell and deliver rubber, but there certainly should be some regular method of weighing.

"It seems to me that the most primitive safeguards in the contract are not specified, and it is just as much in the interest of the dealer to have these standards recognized as it is for the manufacturer.

"Consider the amount of business that is done between dealers and manufacturers with no uniform contract, no standards of nomenclature, no standards of weighing, no standard of what constitutes delivery within a specified time. The integrity of the industry demands that steps shall be taken to clarify all these dealings."

LEWIS & PEAT'S CHART.

The chart covering the variations in London rubber prices since 1909 is a graphic record of the movements of the market. It is supplemented by the following table of the world's production:

World's Production of Rubber, in Tons.

	Plantation Pará.	Wild Pará.	Other sorts.	Total tons.
1910	8,000	38,250	33,750	80,000
1911	14,000	38,000	33,000	85,000
1912	28,500	42,000	25,500	96,000
1913	47,000	39,500	22,000	108,500

English deliveries of plantation Pará are shown as follows: 1910, 6,094 tons; 1911, 9,650 tons; 1912, 19,373 tons; 1913, 31,260 tons England has thus absorbed a large proportion of the increased production of plantation Pará.

The chart contains a photograph of a seven-year-old *Hevea* being tapped in Malaya.

RAW PRODUCTS CO.

The usual chart of this company has been received and is full of valuable statistical information, showing the movement of prices during the last three years, as well as the monthly fluctuations in quotations of 32 grades of crude rubber. United States imports and stocks for each month of 1913 are also given, in addition to Pará monthly arrivals and stocks.

English imports are shown as well as stocks, like information being furnished as to Antwerp and Bordeaux. Being prepared for hanging up, this chart will be found useful for frequent reference and consultation.

ESTIMATED PLANTATION RUBBER SUPPLIES FOR 1914.

After a plantation crop of 47,000 tons for 1913 an English estimate places the supply for 1914 at 63,800 tons. But as this is all pure rubber the increase of some 17,000 tons would be the equivalent of about 25,000 tons of wild rubber, which loses from 15 to 40 per cent. in washing.

Supposing that the decline from Africa, Brazil and Mexico will be 15,000 tons in the current year, a net increase of 10,000 is in prospect. Even with a normal increase of 10 per cent. on last year's consumption of about 105,000 tons there would seem a prospect of a shortage. Such is an English view of the situation.

Another American Speaks His Mind About Mexico.

(The following letter on the Mexican situation was written by an American who spent ten years in that unhappy Republic, traveling extensively and familiarizing himself with all phases of Mexican life.)

EDITOR, THE INDIA RUBBER WORLD:

Dear Sir: The United States is a big country, but any man may go from Maine to California, or from the Great Lakes to Florida, and find the same kind of people, customs and language; Americans may cross into Canada or Canadians into the United States and hardly perceive a difference in surroundings. But when an American crosses the Rio Grande into Mexico he enters into a new world. The people, their customs and their language are entirely foreign to him; hence the difficulty for an American to understand Mexican people and their conditions. The masses of the Mexican people are a very different race from Americans or Europeans, and their history is such that it would be foolish to judge them by American standards.

Three years ago Mexico was flourishing, peaceful and progressing, the Mexican people were happy and had all the liberty that was consistent with the capacity of the masses of that country to enjoy. The progress, peace and prosperity of the country were due to the strong but wise administration of that peerless "Old Roman," General Don Porfirio Diaz, the greatest Mexican that ever lived, for he did more good for his country than any other man. But in all countries, no matter what the form of government, there are the "ins" and the "outs." The "outs" in Mexico had been out a long time, the old president was virile and alert and kept them in awe, but they abided their time, meanwhile preparing for the coming of the Messiah. He came in the shape of a gilded youth of no achievements, with all the presumption of the self-confident, untried theorist, who mistook his inordinate ambitions for a call to save his country—which country was as much saved at the time as it will ever be.

The "Old Roman" had aged and the eager "outs" concluded that this was a good time to strike. They received the aforesaid gilded youth with fraternal arms, and made a straw man of him and launched him as the savior of his country—Don Francisco I. Madero—at the head of the notorious *Ejercito Libertador* (the Army of Liberation).

Diaz saw with the eye of the statesman that an inevitable crisis had reached his people and that the masses had been befuddled. He resigned. They gave up the "Grand Old Man," with all the substantial good that he had brought them, to follow the vain prophet with the alluring promises of land, liberty and plenty. Poor deluded dupes! But some say: "Madero won out; the people must have been with him." My reply is: "A mob was with him, and not even all of the mob, but sufficient to bring down the catastrophe from which Mexico is still suffering."

But you may add: "Madero was finally elected constitutional president." Seemingly yes, but actually no. Madero, through subterfuge and machinations (aided and abetted by his uncle, holding the chair of Finance Minister, and other relatives holding those of War and State) kept his mobs under arms all during the provisional presidency of De La Barra, and when election day came he was forced in the chair through the intimidations of his armed mob at the polls.

Madero was a scourge to his country, because the country had never before been so advanced nor so prosperous and peaceful as at the time he began his revolution. When Generals Felix Diaz and Bernardo Reyes were liberated by the Cadets of Tlalpam, the Republic of Mexico was in chaos. It had been so all through Madero's administration. General anarchy reigned. Mexico City itself, the capital of the Republic, was being assailed. Things had come to a pass where something drastic had to be done.

Now let us come down to date. General Victoriano Huerta is the man of the hour. Strengthen his hands and the Mexican situation is settled. The "Constitutionalists" cannot hide the spots of their Maderism. It is the same "rule of ruin" party and you can recognize them by their tactics.

Listen further to what James Creelman had to say in the "North American Review" of April, 1911: "Nothing can be more certain than that free election and actual majority rule in the present condition of the Mexican masses would mean ruin and political anarchy. It is a hard thing to say, but it is true. The nearest possible approach to popular self-government consistent with peace and material progress, would be a system in which the right to vote was restricted by educational and property qualifications. Yet it is doubtful whether the ignorant Indians and part Indians would consent to such a change in the national organic law. The main burden of the demand of the insurgents has been that the existing constitution of Mexico shall be honestly and liberally enforced and that at all hazards the government shall be turned over to the majority of the people. The answer is—Mexican history."

General Huerta—some say he is a traitor. He would have been a traitor had he not done what he did do. He owed nothing to Madero—he owed everything to his country. He made the *coup d'état* because his country needed a man, and he shouldered the load.

The death of Madero was a mob accident, purely and simply. It was very deplorable and unfortunate, but still, let us not magnify it over-duly. Look at the hecatomb he caused his country! What is one man's life compared with the ruin of a nation? To those who are familiar with history, the manner of Madero's death should not have caused much surprise. He had aroused the very worst element in the country, liberating criminals from all the prisons he could break open, to help him. He made promises that he well knew he could not fulfil. When in power he was vacillating, weak and unfit for the task.

General Huerta did all that could have been asked of him to protect Madero; he took all the precautions that could reasonably be expected to protect him. But the thing happened. It was fate! General Huerta was the last man in all the world who would have had it happen; anybody who will stop to reflect coolly and without prejudice will understand that.

Now as to Mr. Henry Lane Wilson. To put any blame on him for not saving Madero is not only most unjust but extremely foolish. All he could do was to politely signify that his government hoped no harm might befall the unfortunate, deposed president—which no doubt he did. But no matter what they did with Madero, neither the United States representative nor any other nation's representative, had any right to interfere, simply because Mexico is an independent and sovereign nation and is not bound to take dictation in what regards her interior affairs.

Aurora, Mo. LOUIS CASTO.

FORWARD PLANTATION BUSINESS FOR 1915.

London advices report numerous sales of standard plantation crêpe first latex for delivery early in 1915 at 2s. 5½d. (59.80c.) per pound.

These transactions had recently been the subject of negotiation at a lower price, so that their being carried out represents improved market conditions.

The Editor's Book Table.

CULTURE ET EXPLOITATION DU CAOUTCHOUC AU BRÉSIL. A report presented to the Minister of Agriculture, Industry and Commerce of Brazil, by M. O. Labroy and M. V. Cayla. Published by the Brazilian Bureau of Information in Paris. [Illustrated, large 8vo, 236 pages, paper covers.]

WHILE this book—which has recently come from the Brazilian Bureau of Information maintained in Paris—covers ground, much of which is already familiar to many readers of THE INDIA RUBBER WORLD, still it is such a comprehensive story of the culture of rubber in the Amazon basin that it seems well worth while reviewing it in considerable detail. It contains the report recently presented

TRUNK OF FOREST *Hevea*, SHOWING MALFORMATIONS CAUSED BY MANY YEARS' USE OF THE *Machadinho*.

to Dr. Pedro de Toledo, late Brazilian Minister of Agriculture. This report had been drawn up by M. O. Labroy, director of the Pará experimental station for rubber cultivation, with the co-operation of M. V. Cayla, agricultural engineer, and was published by the Brazilian Bureau of Information in Paris.

The object of their labors was to study the present conditions of rubber cultivation in the principal centers of Brazilian production; to investigate the agricultural possibilities of those regions, and, finally, to fix upon locations suited for the establishment of two agronomical stations in the *Hevea* and Maniçoba zones.

M. Labroy, in handing the report to the minister, stated that the time at the disposal of himself and his colleague was insufficient to allow of their paying detailed visits to the rubber districts in the vast territories of Northern and Central Brazil, communication with which is slow and difficult. They were in consequence forced to limit their investigations to the zone of the lower and middle Amazon; including the basin of the Xingu as well as the southern and western part of the State of Bahia, as far as the river San Francisco.

Nevertheless they were able to compile an interesting and very complete report as to the three rubber-producing trees of chief importance to the production of Brazil—Seringa (*Hevea*), Caucho (*Castilloa*) and Maniçoba. Their personal observations harmonized with those previously made at the same points and in various plantation countries, such as Malaysia, Ceylon, East Africa, etc.

In this work their special object was to define the exact situation of the rubber extracting industry in the valley of the Amazon and to suggest practicable improvements; considering finally the inauguration of cultural enterprises in the localities most suitable for their development.

At the head of the list of coadjutors in their labors stands the name of Dr. R. Pereira da Silva, superintendent of the "Defesa da Borracha" (or Defence of Rubber), the bureau which has taken such a prominent part in the recently proposed reforms.

THE WORLD'S PRODUCTION.

In 1892 the world's rubber production was about 30,000 tons, of which 18,318 tons (61.7 per cent.) came from the region of the Amazon. It increased to about 70,000 tons in 1909, and to 80,000 tons in 1911, but meanwhile the proportions from the various regions have been modified. The rubber of the Asiatic forests has practically disappeared, African quantities but slightly

Heveas PLANTED BETWEEN BANANA TREES.

differing from one year to another; a new competition having, however, appeared in the form of plantation rubber.

During the years 1899-1913 Amazonian production practically doubled (from 21,909 tons to 41,950 tons) and plantation Pará advanced from 670 tons in 1907 to 28,500 tons in 1912. At the end of 1912 Amazonian production represented only 40 per cent. of that of the world, being composed of 77 per cent. *Hevea* and 23 per cent. Caucho. In addition, Brazil produces annually about 2,500 tons of Maniçoba and Mangabeira.

Up to the end of 1912 Brazil kept at the head of rubber producing countries, tho during the last 12 years its share in supplying the market has diminished. The opinion is expressed that the calendar year 1913 would see for the first time a production of plantation rubber exceeding that of Brazilian.

AMAZONIAN PRODUCTION.

Owing to its immense resources in wild rubber, the article should long continue to be produced in Amazonia. M. P. Lecointe, the engineer, estimates the number of trees at 200,000,000, of which only one-tenth are being tapped. The area of Asiatic *Hevea* plantations is estimated at 1,125,000 acres, containing 150,000,000 trees, of which scarcely 15 per cent. are being worked.

SMALL BOAT FOR TRANSPORTING RUBBER IN THE REGION OF THE FALLS (RIVER XINGU).

The above figures are quoted by M. Labroy in proof of the prospective importance of the Asiatic plantations and as illustrating the dangers they present for the Brazilian extractive industry, if the measures of defense adopted January 5, 1912, are not strictly and vigorously applied.

HEVEA BRASILIENSIS.

The family of the *Hevea* includes 21 species, the geographical area of which extends over the whole valley of the Amazon and part of that of the Upper Orinoco. A small number of species form the source of the *borracha* of Brazil and the *jebe* of Peru and Bolivia. Of the various species, the *Hevea Brasiliensis* predominates over all other known varieties, owing to the superiority of its product and the importance of its yield. It constitutes the type of genuine Pará rubber and rises to the height of 65 feet and more. The botanico-economical study of the Upper Amazon *Hevea* has advanced but little, but this region differs from the Lower Amazon in its climatic features.

The physiology and biology of this species are next dealt with, as well as the tapping; followed by the consideration of the Amazonian methods of coagulation and preparation of the latex.

The commercial designations of rubber and the business methods in use in Brazil are then discussed, with *proforma* statements of expenses borne by shipments of Amazonian rubber. There is an excessive amount of handling of this rubber from the smoke house to the steamer.

BRAZILIAN PLANTATIONS.

Future cultural enterprises with *Heveas* in the valley of the Amazon should (according to M. Labroy) be inspired by the experience gained on the estates of the Middle East; keeping in view the modifications necessitated by local conditions. Mistakes committed in Malaya can be avoided in Brazil. The basin of the Amazon has ample space for establishing *Hevea* plantations, but the author suggests restricting them at first to locations favored by the nature of the soil and by facilities of transportation. Distant points on the Upper Amazon are now less in favor for such enterprises than the islands, the banks of that river as far as the Rio Negro, as well as those of other rivers. The *Hevea* develops vigorously on the islands of the Amazon estuary, but the climate at that spot is said to be unhealthy. As a fact sanitation has been greatly improved by the clearing and cultivation of the soil, while the mortality among the rubber gatherers largely arises from bad food and excessive drinking.

Succeeding chapters deal with the clearing and laying out of a plantation; multiplication, planting, tapping, methods of coagulation, etc. Further subjects treated are: yield of plantation *Hevea*, pests, and economical considerations as to *Hevea* cultivation and transportation.

EXPERIMENTAL STATIONS.

It is remarked that the good will of Amazonian planters will be stimulated by the Federal decrees of January 5 and April 17, 1912.

By these decrees the Federal government engages:

1. To create an experimental station in the environs of Pará.
2. To instal a rubber purifying plant.
3. To establish a factory of rubber goods.
4, 5. To build different lines of railway.
6. To organize a zoo-technical post on the island of Marajo.
7. To establish a fishing industry.
8. To erect an asylum capable of receiving 1,500 immigrants.
9, 10. To instal three hospitals, each for 100 sick patients, at different points in the State.
11. To maintain two coal depots.

On its part the State engages:

1. To gradually reduce by 10 per cent. the rubber export tax within a term of 5 years; equaling 2 per cent. per annum, commencing from January 1, 1914.
2. To exempt plantation rubber from all tax during 25 years from January 5, 1912.
3. To establish a fixed tax of 400 reis per kilo (6 cents per pound) on rubbers containing more than 6 per cent. of impurities.
4. To exempt from all taxes for 25 years certain agricultural enterprises.
5. To diminish, under agreement with the Federal government, and in the proportion of 40 per cent., the freight tariffs of the navigation companies administered or subsidized by the State of Pará.

MANICOBA.

Five species of wild Maniçoba are described, with their biology and climatic peculiarities. Under the head of "Cultivated Maniçoba," full details are given for the guidance of intending planters. The work contains over 100 artistic illustrations, some of which are reproduced.

CASTILLOA AND MANGABEIRA.

The botany of *Castilloa* is dealt with, as well as its cultivation and tapping. It is remarked that the regions with the climatic conditions most favorable to the Amazonian species are just those which have the least facilities of transportation.

Some trials have been made of cultivating Mangabeira, notably in the State of Sao Paulo. These trials have established the fact that this species grows too slowly for the establishment of commercial plantations. In this opinion M. Labroy concurs in his final remarks.

KALENDER FUR DIE GUMMI-INDUSTRIE UND VERWANDTE BEtriebe (Calendar for the Rubber Industry and Kindred Branches). Issued by Dr. Kurt Gottlob. Berlin, 1914. Union Deutsche Verlagsgesellschaft. [Cloth, 6 x 3½, 280 pages, with supplement of 228 pages.]

With each recurring year, the above-named calendar makes its appearance, its completeness of detail rendering it specially useful to all interested in calculations affecting rubber. A number of tabular pages give space for recording purchases of rubber, losses in washing, details of vulcanization

and other points of importance; while the standard tables showing equivalents in German currency of English prices per pound at various rates of loss in washing, form a valuable basis of calculation. Further tables include estimates of production, consumption and visible stocks for the years ending June 30, 1906 to 1913.

A group of tables records the sources and characteristics of South and Central American, African, Asiatic and Oceanic varieties of rubber, while another series gives the variations in rubber prices from October, 1912, to September, 1913.

The subjects of manufacture and products are next dealt with, in the form of tables showing the chemical composition of various ingredients used in rubber compounds, the comparison of German and English vulcanization scales, logarithms and other mathematical calcuiations. An interesting feature of this section is the normal price list of rubber hose in various internal diameters and thicknesses.

Other interesting tables with reference to the commerce in rubber and rubber goods enhance the completeness of the work. The supplement includes an historical calendar of the rubber industry from A.D. 1536 to 1910, as well as a review of the chemistry and technology of rubber. It also contains a good deal of varied technical information, which renders the calendar of interest and value to rubber manufacturers in general.

COCONUT CULTIVATION AND PLANTATION MACHINERY. By H. Lake Coghlan, of Singapore and Johore, and J. W. Hinckley, Associate of the English Royal School of Mines. London, 1914. Crosby, Lockwood & Son. [Cloth, 6½ x 4½, 124 pages.]

In this handy little volume there is grouped a quantity of information gathered and compiled by its authors, whose experience has given them special facilities for the task.

According to an outline of the various requirements of humanity which the coconut palm fills, the roots furnish a remedy for fevers; the trunk wood for building purposes; the stalk firewood; the husk coir for cordage and paper pulp; the shell drinking vessels and rubber latex cups; while the kernel (commercialy known as copra) gives oil, cattle feed, nut butter, soap, food and candles. Finally, the milk forms a delicious beverage. The authors state that nothing else that grows on earth has so many uses as this wonderful tree, for which Malaya, the successful rubber country, is also an ideal land. Europeans have not given this particular cultivation the same attention that has been devoted to rubber and coffee, the coconut industry having remained almost entirely in the hands of the natives or the Chinese; the total area under that form of cultivation being about 150,000 acres. Latest annual exports of Malayan coconut products equal in American currency approximately: Coconuts, $150,000; coconut oil, $1,100,000; copra, $10,000,000; total about $11,260,000. There are said to be large tracts of land suitable for coconuts in Malaya awaiting the advent of enterprising capitalists. It is added that the industry is only in its infancy and is bound to expand on the introduction of more enlightened methods for the preparation of the copra and the extraction of the oil.

In subsequent chapters the details of cultivation are dealt with, while in a later section the machinery and plant for coconut factories are fully described, with illustrations, plans and estimates. Catch-crops receive mention in connection with Robusta Coffee and other intermediate forms of cultivation. It is, however, remarked that rubber trees should on no account be interplanted with coconuts, as they cannot possibly thrive well together.

To all interested in the subject of coconuts, this comprehensive summary will prove of value.

RUBBER SHARE HANDBOOK 1914.

THE 1914 issue of this useful handbook is full of valuable information about the 589 plantation companies represented in England. This number is apparently smaller than that shown in April, 1913, for the previous two years, but this arises from the elimination of the "Dollar and Rupee" companies and of the Rubber Trust companies, which make the correct amounts for 1912 561, and for 1913 580. In comparison with these figures the total for 1914 of 589 shows a slight advance on last year, principally due to the addition of new companies in Malaya, more or less offset by some falling off in respect to Africa. Nearly two-thirds of the plantation companies thus belong to the Malay States and Ceylon.

STERLING PLANTATION COMPANIES (ELIMINATING RUBBER TRUST COMPANIES AND "DOLLAR AND RUPEE" COMPANIES).

	1912.	1913.	1914.
Malay States	*223	*237	251
Ceylon	*101	*109	113
Java	43	44	47
Sumatra	39	40	37
Borneo, etc.	28	27	29
India	34	37	34
Oceania	4	4	4
Africa	52	49	43
South and Central America, Mexico, etc.	37	33	31
Total	561	580	589

*Revised figures.

In the preface to the work, Mr. E. L. Killick refers to the figures of production now available, as follows:

	Plantation.	Brazil.	Rest.	Total.
1912	*tons* 28,518	42,410	28,000	98,928
1913	" 47,200	39,370	19,100	105,670
1914 (estimated)	" 65,000	32,000	10,000	107,000

Receipts from Brazil, he adds, during the past few months indicate a serious falling off, so that it is reasonable to conclude that the Brazilian industry is feeling the pinch of low prices and will do so to an increased extent.

The opinion is expressed that it will not be long before African and other wild rubbers will become quite unsalable at remunerative prices, seeing the steady increase of plantation imports. That the requirements of the automobile industry are in excess of supplies is proved by the lack of adequate stocks.

With regard to plantation rubber, Mr. Killick emphasizes the advantage of the low cost of production, adding that there is no reason to doubt it will ere long reach a total cost of about 1s. (24.33c.) per pound, while wild rubber can never be produced on such favorable terms. Costs will probably not vary much throughout the plantation zone, it being apparently reasonable to accept 1s. as the ultimate cost of production, with 400 pounds per acre as average annual yield at maturity.

One advantage of plantation rubber is that when the market is unfavorable production can be held up and the rubber left untapped awaiting an improvement. In Mr. Killick's own words: "As there is strong evidence of general agreement among big buyers of rubber, the necessity of a protective combination of sellers is obvious. . . . The inference is that no real desire for combination exists among producers. The market will apparently be left to take its own course, with consequences eventually damaging to the entire industry, and disastrous to individual companies of insufficient financial strength."

EXPORTS OF RUBBER MANUFACTURES TO PHILIPPINES.

Statistics for October show the following exports from the United States to the Philippines of manufactures of rubber during the month in various years: 1908, $5,596; 1912, $16,218; 1913, $40,036.

NEW TRADE PUBLICATIONS.

NATIONAL INSULATED WIRE AND CABLES.

THE National India Rubber Co., of Bristol, Rhode Island, with its chief sales office at 30 Church street, New York, has just favored the trade with a beautifully printed catalog 6 x 9 inches in size with 224 pages and stiff cardboard covers. In reproducing the insulated wires and cables made by the company the printer has permitted himself to use as many colors as the articles require. As a result, he has probably used, all told, including various bronzes, eight or ten different printings to accomplish the desired effect. This is rather an expensive way of producing a catalog, but it is exceedingly effective, as it shows the goods precisely as they are.

In addition to a great number of illustrations of goods there are a number of interesting pictures of factory interiors. One is reproduced here, showing a room containing a great number of high speed braiding machines. Three interesting full page photographic reproductions in the front of the book show the gathering of the latex in the Amazon forests, its coagulation over the smoke of palm nuts and two enormous biscuits of Pará rubber standing outside of the National mill, one biscuit weighing 1,210 pounds and the other 1,465 pounds. It is hardly necessary to add that Pará rubber is not normally shipped to this country in biscuits of this size.

High Speed Braiding Machines.

ANTAEUS WATERPROOF CLOTHING.

The trade in that industry has received a special illustrated catalog of "Antaeus" waterproof clothing made by the North British Rubber Co., Ltd., of Edinburgh. The ladies' models include the "Raglan" and the "Kitty," while those for gentlemen comprise the Chesterfield and another model of Raglan.

The suitability of the "Antaeus" garments for withstanding tropical weather is shown by a letter from a customer in the West Indies, who has worn a coat of that brand for nearly five years in that trying climate. His previous experience had been that a raincoat lasted less than a year.

Among the specialties listed are fishing jackets and motorcycle garments. Scales for self-measurement for ladies' and gentlemen's garments form a useful feature of the catalog.

Another special catalog is that of the waterproof fabrics made by this concern, including patent calendered and upholstering cloths, as well as a full range of materials in a great variety of designs and qualities.

A FINE EXAMPLE OF BELTING AND PACKING LITERATURE.

The New York Belting & Packing Co., whose main offices and warerooms are at 91 Chambers street, New York, has also issued a particularly handsome catalog. It is a book about 6 x 9 inches in size with 230 pages, bound with stiff cloth covers. It is printed in two colors, a steel black and buff, colors which lend themselves to very attractive combinations. In the front of the book there are several pages devoted to fine two-color halftone reproductions of the company's big plant at Passaic, New Jersey, the interior of the New York store and interior views of the Philadelphia, Pittsburgh, St. Louis, Chicago and other stores. The volume is generously illustrated, showing not only a vast variety of belting, packing, hose and tubing, but giving fine full-page interior factory views of the departments where the various articles described in the text are produced.

There are two particularly effective halftone illustrations toward the back part of the book—one showing an office of the United States Rubber Co., the other showing one of the Lackawanna ferry boats — in both of which the floors are covered with this company's interlocking tiling, the illustrations being printed in a sufficient number of colors to represent the tiling as it appears on the floor. The halftone illustrations are made from photographs subsequently touched up by the artist to bring out details which the camera was incapable of fully producing. The catalog reflects much credit on Mr. Roberts, who looks after the company's literature.

THE HUB-MARK BOOK FOR SALESMEN.

The Hub-Mark Rubber Co., of 174 Congress street, Boston, has prepared a little book entitled "Hub-Mark Common Sense" for general distribution among the salesmen of that well advertised brand. It is of convenient pocket size, so that the salesman can carry it with him and peruse it on the train or at other odd moments. It gives a short description of the way in which Hub-Mark goods are made and prepared for the market, showing the great care which is taken with every detail. The book concludes with a three-page reprint of an article by Herbert Kaufman, which recently appeared in some of the daily papers on "The Practical Value of Civility"—an article which is full of good advice for everybody who has anything to sell.

Send for index to "Crude Rubber and Compounding Ingredients."

FULTON SPECIALTIES.

While larger business operations call for the use of metal type, there is a wide field for the use of rubber type, for the purpose of rapidly making attractive window signs, shelf labels and other announcements. Completeness of assortment is essential to the perfection of such a system, and that this has been attained in the product of the Fulton Rubber Type Co., of Elizabeth, New Jersey, is shown by two interesting catalogs, Nos. 27 and 28, recently issued by that company. The former includes the Fulton line of sign and price markers, while the latter deals with business printing outfits with movable rubber type, as well as with stamp pads and other accessories.

At the factory from 15 to 20 tons of rubber type pass every year through the vulcanizing department, every manufacturing operation, from the crude rubber to the finished product, being carried out on the premises.

As showing the perfection attained by this enterprising concern in one branch of the rubber industry, these catalogs are both interesting and instructive.

THE SIMPLEX MANUAL.

In a neat booklet the Simplex Wire & Cable Co., Boston, has published a new edition of its "Simplex Manual," containing tables of dimensions and weights of its solid copper wire and other products. Prices are likewise given for "Simcore" cables and wires, "Simplex" caoutchouc (B. C.) wires and twin wires. For the purpose of facilitating calculations, a useful table is annexed of freight additions for various sizes of wire to the different states. To any one desirous of making rapid and accurate calculations of this company's products, this little work will prove an invaluable handbook.

A PAMPHLET ON THE INDUSTRIAL TRUCK.

On a recent occasion, Mr. W. W. White, of the General Vehicle Co., Inc., Long Island City, read a paper before the Electric Vehicle Association of America on "The Industrial Truck as a Factor in the Efficient Handling of Internal Freight." He remarked that the word "Industrial" was rather a classification than a type, there being many special applications of the freight truck. Each class has its special fitness for certain kinds of work, the freight truck proper being very elastic in its range of services.

Long before the days of the motor truck it was evident that something was wrong with the horse system of trucking, but the extent of its inefficiency was not apparent until the motor truck gave a standard of comparison applicable in connection with horse traction.

Other subjects touched on by Mr. White are: freight congestion and its remedy, and analysis of time lost at docks and platforms.

Various effective illustrations supplement the text and show the General Vehicle Co.'s models, which are already used in 32 cities at home and abroad. Thirty-seven carriers and firms are now using 208 of the company's 2,000-pound type. One textile plant in New England is using twelve of these machines for carrying rolls of print cloth and dye tubs from the storehouse to the printing machines.

SEVERN TIRE COVERS.

In a tasteful catalog the Severn Rubber Co., Limited, of Meteor Works, Birmingham, England, has graphically illustrated its various forms of tires, tire covers and other products. The covers include the standard grades, "Severn," "Meteor," "Record," "Clarion," "Burbury" and "Mascot." Special heavy covers are shown in the "Meteor" and other qualities.

The lines of automobile accessories are very complete, including brake blocks, "Severn" solution, patching rubber, valve tabs, tire paint, tire gaiters, acetylene gas tubing, etc. The arrangement of the catalog is remarkably clear and explicit, and it is sure to be of use to dealers in the range of products represented.

THE GOODRICH.

In No. 5, the cheerful and inspiriting magazine "The Goodrich," published by the B. F. Goodrich Co., Akron, casts a ray of sunlight on the tire trade by a selection of breezy anecdotes, with in most cases the moral "to use the Goodrich tire." Being described as a "Southern number," it is appropriate for the illustrations to depict scenes in the "Sunny South," with which the "Goodrich" is more or less directly associated. The more distinctly local views include "Along the Levees at New Orleans," "Atlanta—A Real Live City," "Goodrich New Orleans Store," and "Auto Shop at Van Alstyne, Texas." A selection of "Slides for the Movies" shows how dealers in various parts of the country are utilizing this modern form of advertising to promote the sale of Goodrich tires.

DERBY CALENDAR FOR MARCH.

The March calendar of the Derby Rubber Co., of Derby, Connecticut, has a picture in colors entitled "Close Quarters," showing a hunter scaling the narrow edges of a precipitous cliff while a big brown bear is hot in pursuit. At the moment the artist depicts the scene the hunter is evidently cornered and has turned on his pursuer with his revolver. The logical suggestion of this picture is that within a few minutes only one of these two figures will remain, but whether it will be the hunter or the bear is left to the imagination.

A NEW FIRESTONE HANGER.

A hanging card 18 x 30 inches in size, and in colors, designed to direct the attention of automobile owners to emergency tire repairs and illustrating and describing six of these articles, is being distributed by the Firestone Tire & Rubber Co. to dealers and garages. Cure-Cut, Cementless Patches, Inside Blow-Out Patches and Tire-Save Patches, as well as Lace-on and Hook-on Boots are included in the accessories mentioned, and the occasions on which each may be appropriately and profitably employed in emergency repairs is suggested.

THE PORTAGE RUBBER CO.'S "RUBBER TIRES."

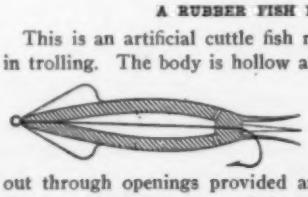
In its booklet entitled "Rubber Tires" the Portage Rubber Co., of Akron, describes three constructions by which pneumatic tires are made, viz., Full-molded, Single-cure wrapped tread and Double-cure wrapped tread, going into details of construction and illustrating the "Daisy" and other treads. This booklet contains also advice on the care of tires, with tables of inflation and carrying capacity and of interchangeable tire sizes.

"RUBBER."

The February issue of "Rubber," published by the Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, is an interesting one, and should be especially so to dealers in footwear, as it calls attention to displays supplied by the company to assist the dealer in the sale of rubber goods. Particular emphasis is given to the patented heel construction employed in this footwear, and to the new Plaza heel rubber for women—both of which are illustrated. Attention is called to the extent of the service the company is able to offer dealers, a service extending "From Pilgrim's Rock to the Golden Gate." This number also contains an obituary, with portrait, of the late George A. Lewis, for many years president of the company.

A RUBBER FISH FOR TROLLING.

This is an artificial cuttle fish made of soft rubber to be used in trolling. The body is hollow and filled with absorbent cotton, to be saturated with a fish oil pleasing to the taste of the particular fish you are after. The oil slowly leaks out through openings provided and adds an agreeable smell to the attractive appearance of the lure.



THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE Rubber Trading Co., of 38 Murray street, New York, crude rubber brokers, has opened a branch office at 603 Flatiron building, Akron, which is under the personal supervision of Robert T. Baird. Mr. Baird is not a new man in Akron, having at one time been connected with the rubber business in this city for several years. His many friends here are glad to see him return to Akron.

* * *

At the meeting of stockholders of the B. F. Goodrich Co., held in New York City March 11, the following directors were re-elected for three years: F. A. Hardy, E. C. Shaw, C. B. Raymond, H. E. Raymond and David M. Goodrich. This was followed by a meeting of directors, when the officers of the past year were also re-elected.

A. H. Marks, of this company, is in Florida in the hope of regaining his health. Mr. Marks was operated on about a year ago at Johns Hopkins, and has not yet fully recovered.

W. O. Rutherford, recently elected assistant sales manager of the Goodrich company, was formerly manager of the Denver branch. Then for a period of ten years he was head of the Buffalo branch, and during the last four years he has been at the Akron factory. Perhaps his most conspicuous talent is that of organization. His associates all testify that there are few so capable of enthusing a selling organization and keeping it at a productive white heat.

* * *

Alexander Adamson, of The Adamson Machine Co., Akron, will attend the International Rubber Exposition to be held in London in June.

* * *

W. S. Campbell, formerly with "The Iron Trade Review and Daily Iron Trade," is now advertising manager for The Miller Rubber Co.

* * *

The degree of care exercised in the production of tires is fully explained in recent literature sent out by the Firestone Tire & Rubber Co. Starting with the tire fabric and following all the way to the completed casing, every component of the tire is subjected to the most exhaustive tests and every operation to the closest scrutiny. The fabric is unrolled over electric lights—slowly, so that the inspector may detect any flaws—after which it is subjected to pulling tests. The rubber in manufacture receives equally close care and attention, and in the work of building up the tire every individual process is supervised by inspectors, each operation requiring the O. K. of the inspector before the next is begun; so that when the completed tire has passed final scrutiny it is almost certain to be entirely free from flaws.

The sales manager of this company, R. J. Firestone, in his campaign of education in the interest of the automobiling public, is emphatic in his endorsement of the doctrine that tire chains are useless on any car except when deep snow or mud is encountered. That non-skid tires, scientifically made, tested and proved—such, for instance, as are produced in the Firestone factory—afford much greater surety against skidding, either sideways or forward, is the claim advanced; and he further calls attention to the wear and tear on tires equipped with chains as a result of grinding back and forth, stating that he has often seen a practically new tire with the tread almost torn from the carcass from the use of a chain.

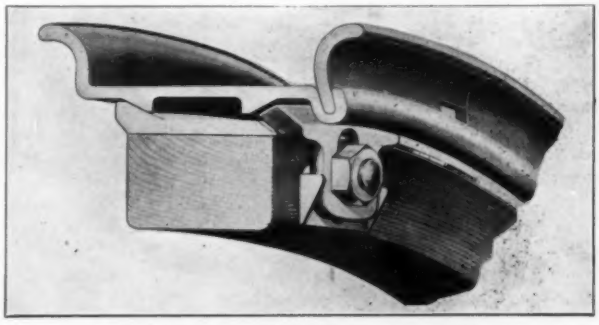
The Firestone Tire & Rubber Co. for the past two years has been developing a motorcycle tire to add to its automobile tire line. These are made in four popular sizes: 28 x 2½, 28 x 2¾, 29 x 2¾, and 28 x 3, finished in either corrugated or regular Firestone non-skid tread. The company is also making red tubes and gray tubes to fit all sizes.

* * *

At the special meeting of stockholders of the Goodyear Tire & Rubber Co., held March 3, the plan proposed by the directors for the introduction of new working capital was approved, and holders of common shares immediately subscribed for the majority of the new $4,000,000 stock offering. Comparison of tire sales for the first three months of 1913 and 1914 show very gratifying gains, and officials of the company express the belief that business for the entire year will be materially increased. The productive capacity of the plant—which early in February was increased by about 1,000 tires per day, reaching a total approximating 6,000—has since that time been still further increased, a letter emanating from the office of the company's president containing the statement that on March 5 more than 8,300 pneumatic tires were made. The company expects during 1914 to make and sell 190,000 motorcycle tires, sales of which for the years 1911-12-13 aggregated 250,000 tires.

The Goodyear company endorses the suggestion of the Society of Automobile Engineers in regard to limiting the solid tire sizes for motor trucks and motor fire apparatus to diameters of 36 and 40 inches, stating that such action would lead to more uniform production and quicker and more satisfactory filling of orders, while the necessary engineering changes for car manufacturers would be but slight.

A new rim has recently been placed on the market by the



GOODYEAR NO-RIM-CUT DETACHABLE DEMOUNTABLE RIM.

Goodyear company, for use with all standard types of tires other than the clincher variety. This rim permits the tires to widen out at the base and rest in natural position, providing greater air space and insuring the side walls against excessive strain through having the beads pinched together. The flanges are also of sufficient height and of suitable contour to give proper support to the tire. This rim is claimed by the company to be the lightest rim on the market supplied in demountable form. It is simple in operation and the outside flange answers the purpose of a combination side ring and locking ring. The accompanying illustration shows this rim in the No-Rim-Cut Detachable style.

* * *

A contract has been awarded by the Kelly-Springfield Tire Co. for a $15,000 office building to be erected in this city at Kelly and Second streets.

* * *

W. B. Miller, formerly secretary of The Diamond Rubber Co., has associated with himself several men prominent in the rubber industry in Akron in his new rubber factory located at South Norwalk, Connecticut. The names of these men will be given in a later issue.

* * *

H. A. Price, formerly manager of the Atlanta branch of The B. F. Goodrich Co., assumes management of the Cleveland

branch; and Mr. Murphy, assistant manager at the Philadelphia branch, goes to Atlanta to succeed Mr. Price.

* * *

W. E. Slabaugh has been appointed trustee in bankruptcy of the Akron Rubber Mold & Machine Co.

The McNall Auto Tire Co., of Toledo, Ohio, organized by several Akron men, will engage in a general tire business.

* * *

Buchtel College, which within the past six months has become the University of Akron, is emphasizing technical and engineering lines, and especially those connected with the rubber industry; and no doubt the change from its former ownership to that of the city will give it increased prestige, larger resources and insure its future. Free tuition is granted by the city, and it is kept up at the city's expense. It was opened in 1872. The endowment and college buildings are valued at $300,000, free from debt, and all were turned over to the city upon the condition that the university should be maintained as a municipal institution. There are six acres in the campus, with an athletic field of four acres. Thus Akron is one of the few cities in the country where a college education can be secured by its residents free.

Akron's growth during the last two years necessitates the erection of six large school buildings the coming summer.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS has not changed materially, one way or the other, during the month. Weather influences are blamed for the tardiness of spring activity. While Boston and New England have not suffered so severely from the lingering winter, still there has been enough in the climatic conditions to give fairly plausible excuse for a somewhat prolonged continuance of the conservatism which has characterized nearly all trades for the past few months, and the rubber trades have, to a considerable extent, followed the fashion.

The notable exceptions are the clothing and footwear lines, which naturally have benefited by the many and severe storms at the fag-end of the season. Clothing men report a brisk demand for raincoats and rubber garments, this demand being noted for all qualities from the finest down to the very cheapest. Perhaps the business in cheap garments is stimulated by the various transient stores devoted to "fire sales" or "removal sales," which are seldom absent from this or other large cities.

Naturally the rubber footwear trade has been lively, and stocks in retailers' hands have been greatly reduced, and in many cases entirely depleted, because of the snow storms and the thaws following. The rubber heel manufacturers all seem to be busy, and their number does not grow less. Many of them have added to their lines the manufacture of rubber soles for shoe manufacturers. The fashion which started last year, of leather or canvas shoes with stitched-on rubber soles, will continue this coming summer at least, and the makers of rubber soles have secured much extra business because of this demand. Competition has been and continues keen, and shoe manufacturers have been able to buy "rubber" soles at most any price they were willing to pay. So many poor quality soles were put on shoes last year, however, that some shoe manufacturers discontinued the making of these lines. This has discouraged the making of too low a quality of soles, and most of those produced today are of a better grade.

Reports of the tire manufacturers are somewhat conflicting. Some seem quite well satisfied, reporting business excellent, while others state that business is dull, and not enough is doing to warrant running their factories to full capacity. Possibly as many tires are being made and sold as in a corresponding period of previous years; perhaps more, but the trade is evidently unevenly divided.

The Automobile Show last month was well attended, and some good business resulted for the manufacturers of motors and cars. As per the agreement made previously, few tire manufacturers exhibited, but it was noticed that the Automobile Show Program, a handsome book of 128 pages, contained advertisements of many of the leading tire agencies, calling special attention to their Boston locations, and inviting visitors to the fair to call upon them and examine their lines in a more leisurely manner than would be possible at the exhibition hall.

* * *

Among the surprises in automobile tire circles was the announcement about the middle of last month that Howard Limric had resigned as local manager of the B. F. Goodrich Co. in this city, and had become manager for New England of the Kelly-Springfield Tire Co. Mr. Limric has been with the first mentioned company many years, coming here from Akron fourteen years ago as assistant manager of the tire department, then located at 24 Kingston street, where three or four men constituted the sales force. Later, when larger quarters were established on Columbus avenue, he was made manager, and as the business grew the new large building on Boylston street was erected, planned and furnished under his direction, the business having increased twenty to thirty fold under his management.

He now becomes New England manager for the Kelly-Springfield Tire Co., with local offices and salesrooms on Boylston street, near Exeter street, in the very heart of the automobile district. Mr. Limric has made a host of business and social friends in the fourteen years he has been here, and they all wish him the same marked success in his new position which he enjoyed with the Goodrich company.

Mr. Limric's retirement has resulted in the advancement to the New England managership of the Goodrich company of J. F. Moore, who has been with the company many years, and was Mr. Limric's "right hand man" and understudy. It is safe to predict that the business of the company in New England will be continued much on the same lines as heretofore, with only such changes as would naturally come from the difference in the personalities of Mr. Moore and his predecessor. Like Mr. Limric, he is a hustler for business, knows his company and its goods, has the confidence of his superiors at the home office, and the good will of the hundred or more employes at the Boylston street store.

* * *

The clerks and salesmen of the Revere Rubber Co., Chelsea, held a most enjoyable reunion and banquet at the Boston City Club early last month, at which nearly 100 were present. Among those who addressed the assembly on subjects pertinent to the occasion, and appropriate to the business interests of the diners, were C. W. Townsend, Samuel Walker, Frank B. Dickson, Arthur M. Hope and Howard Irwin.

* * *

President Robert C. Harlow and Treasurer J. H. Stedman, of the Monatiquot Rubber Works Co., of South Braintree, with their wives, sailed Saturday, the 14th, for Bermuda, where they will spend a few weeks.

* * *

William F. Mayo, the head of the big rubber shoe concern bearing his name, with his wife, is touring the western country. They were in southern California during the excessive rains of a month ago, and had somewhat strenuous experiences. The train they were on was the last to cross one of the bridges later carried away by the flooded river. The tourists are now proceeding on the return trip in a leisurely manner, making stops at several of the more important sightseeing points.

* * *

Captain F. H. Appleton, president of the Rubber Reclaimers' Club, shared with the Honorable Curtis Guild, ex-governor of Massachusetts, and former ambassador to Russia, the honor of

being a guest and speaker at the first annual banquet of the National Association of Waste Material Dealers, held at the Hotel Astor in New York on the 17th ult. Both gentlemen made eloquent speeches, which were heartily applauded.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

REPAIR work has started in a number of the western elevators, and Chicago belting firms are receiving an increasing number of orders by every mail. Extensive paper mill building is promised for this spring in the northern part of Michigan and the belting people are confident that they are going to have an excellent season. Packing is now in good demand among the coal mines of the middle west, which have started spring equipment work earlier than usual this year.

Fire Marshal C. F. Seyferlich has announced that the Manhattan Rubber Mfg. Co., 61 West Lake street, was the lowest bidder in a competition by a number of local rubber houses for 70,000 feet of rubber fire hose. The Electric Hose & Rubber Co. was the lowest bidder for 5,000 feet of chemical hose. John H. Merrel, assistant manager of the Manhattan company, said that its order would be filled with "Economy" brand of underwriters' labeled cotton rubber lined fire hose, with the double jacket. The competition is thought to have been rather keen for the contract this year. Last year H. Channon & Co. were the successful bidders.

In addition to the two contracts mentioned a contract was given at the same time for a number of solid rubber tires, the Firestone Tire & Rubber Co. securing this award.

The P. A. Salisbury-Schulz Co., one of the largest manufacturers of rubber stamps in the city, has recently added a retail stationery department. P. A. Salisbury is one of the oldest rubber men in the city and has been in business at the same location for the past 35 years. The new addition to the store does not mean that the company will in any manner cease to emphasize the rubber end of the business, but merely that advantage is being taken of an opportunity which exists because of no stationery store being located in the immediate vicinity.

* * *

This is a photograph of a ten-ply rubber composition belt

ENORMOUS RUBBER COMPOSITION BELT.

made by Salisbury & Co. for the Universal Portland Cement Co.—length, 1,250 feet; width, 36 inches; weight, 9,132 pounds. Ten weeks were required for manufacture in the company's large factory at Buffalo, New York, and it was found necessary to remove the door frame of the shipping room before it could be loaded upon a flat car and cleated for transportation. The belt will be used in the plant of the cement company at Buffington, Indiana, near Chicago, to convey hot cement from the grinders to the refining department.

This firm manufactures rubber belts of all kinds, and pays particular attention to grain elevators. Repair work is going on now in the giant elevators of the west and in southern Canada and a large number of orders has been received from the managers of these great enterprises. W. H. Salisbury & Co. make a special study of the problems which confront these managers in installing belts. One of the greatest troubles is to get them to buy a belt with a heavy enough ply, their inclination being to purchase a belt which is just strong enough to do the work, rather than one which can do the work and still have left a surplus of strength.

* * *

D. H. Cassel, formerly of the Ruboid Belting Co.'s sales force, has joined the selling staff of the Boston Belting Co., and will travel in Wisconsin, Indiana, Michigan and Illinois.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE frequency of wet and stormy weather during January, February and early March materially stimulated the rubber business, especially among such concerns as operate footwear departments. The resultant reduction in stock has furnished work for the employes, and it will be a couple of months before lines are fully replenished. Those factories making automobile goods are finding an increasing trade, which, however, is not as great as for the corresponding time a year ago.

* * *

A decree was entered in the United States District Court for Rhode Island about the middle of the month by Judge Arthur L. Brown, holding that the American Locomotive Co. does not infringe on the patent of the Dual Tired Wheel Co. This is one of the first cases to be decided in Rhode Island under the new law allowing patent cases to be tried in the Federal District Court.

The Dual Tired Wheel Co. interests are patentees and makers of a wheel whereon are mounted two parallel rubber tires with a central metal tread between them, intended to act as the tread of the wheel when a heavy load is being carried. These wheels are designed to run on tracks, but may be used on roads where there are no tracks if it is so desired. The American Locomotive Co. got out a wheel which had mounted two parallel rubber tires separated by a small piece of metal about three-quarters of an inch in diameter. The contention was that a tire of this description was an infringement of the patent granted the plaintiff, but the defendant locomotive company claimed that in the design of this tire it was not intended to use the metal strip as a tread. Judge Brown, in his opinion, states that the metal strip used by the American Locomotive Co. is too small to be used as a tread and that the wheel was not designed to run on tracks. He holds that the patent granted to the wheel company has not been infringed. On several other allegations Judge Brown finds it unnecessary to give an opinion.

* * *

C. H. Oakley, of the Essex Rubber Co., lost on Mach 9 a pair of tires valued at $70, these having been stolen from the rear of his car.

* * *

The severe rain storm that swept over this State early in the month caused considerable damage by reason of swollen streams. For the first time in its history, the Alice mill of the Woon-

socket Rubber Co., at Woonsocket, was forced to shut down on the 3rd inst. because of the height of the water in the Blackstone river. The afternoon before, the water ran over the dam at the mill at a depth of three feet above normal, or seven inches higher than it had been for many years. The water flooded the basement of the main building and leaked into the engine room, covering parts of the flywheels and putting the engine out of business. A force of men was at once employed, the water was lowered and repairs made so that the mill was able to resume operations the following day.

An addition, 60 x 80 feet, of steel faced with brick, has just been made to the Alice Mill and is to be utilized for a machine and carpenter shop and for the completion of any special work.

* * *

Business at the National India Rubber Co. at Bristol has taken a decided boom in the last month, and one of the largest shoe tickets for a long time is the result. A new slipper called "The Tango," of very neat design, is being made, with cloth tops and rubber soles to prevent the wearer from slipping or sliding while dancing. The company is receiving numerous large orders for these goods. The wire insulating department is on short time at present as it is the dullest period of the year in this line. The plant is running on five and eight hour schedule alternating days.

Two large metal cupolas were blown off the roof of the storage room at this company's plant during a severe storm early in March.

Harry H. Shepard, former manager of the National company's factory, is reported to be seriously ill at his home at Bristol. His right leg was amputated about the first of March.

* * *

The International Rubber Co.'s factory at West Barrington is being operated four nights a week until 9 o'clock to keep up with the orders that have been accumulating for several weeks for carriage cloth, a product that is made of a sort of twill, coated with rubber, and used in the manufacture of carriages. Evening work is expected to be necessary for several weeks to come.

* * *

Pending negotiations regarding the ownership and control of the Consumer's Rubber Co., of Bristol, the factory is being operated on orders, large quantities of tennis and rubber shoes being turned out daily.

Just before noon on Thursday, March 19, at the office of this company, the superintendent, Terrance McCarthy, was presented with a large basket of azaleas and carnations from the employes of the factory, the occasion being the anniversary of his birth.

* * *

Samuel M. Nicholson, of this city, who was elected a director of the United States Rubber Co. at the recent annual meeting of the stockholders at New Brunswick, New Jersey, is president and general manager of the Nicholson File Co. and president of the American Screw Co., as well as a director of the Union Trust Co., the Industrial Trust Co. and the Rhode Island Safety Deposit Co.—all of Providence.

* * *

The Revere Rubber Co. is operating its plant on Valley street, Providence, on a full time basis, which includes a night and day force. This plan is to be kept in operation, according to a recent statement from that concern, for an indefinite period. The company desired, it is said, to turn out 1,000 automobile tires per day, and in order to do this it was necessary to greatly increase the working force. According to a statement from the management, the concern has orders for about 60,000 tires for outside sales, and to this can be added a large amount of stock that will have to be produced to replenish the branch storehouses of the corporation. It is said that the prospects for steady work on the present basis are very promising.

THE RUBBER TRADE IN TRENTON.

By our Regular Correspondent.

A BILL was introduced in the Assembly on March 4 which if passed will limit the number of working hours which shall constitute a week's work in any factory or work shop in the state of New Jersey to 50 instead of 55 as heretofore. This bill also provides what these hours shall be, viz., from 7 a. m. until noon and from 1 p. m. until 5 p. m.—with the exception of Saturdays.

* * *

The state of New Jersey has become prominent in the production of automobiles and in kindred lines of manufacture, and the city of Trenton has materially aided in bringing about this enviable prominence. The total population of the state, according to the census report of 1910, was 2,537,167, and statistics show that in the state 40,000 men are employed in the automobile and kindred trades, in addition to about 7,000 garage employes and 14,000 chauffeurs. There are in the state more than a dozen tire manufacturing concerns, six of which—the Acme, Ajax-Grieb, Empire, Home, Thermoid and United & Globe—are located in Trenton, while the Michelin company is near-by, at Milltown. Jersey City is the home of the Carspring tire; the Braender and Rutherford companies are located in Rutherford, the Mattson at Lodi, the Hardman at Belleville, near Newark, the Combination Manufacturing Co., tire manufacturers, at Bloomfield, and the Howe Rubber Co. at New Brunswick. The roads of the state are always in excellent condition, more than $500,000 being spent annually in up-keep and improvements. During 1913 there were 49,588 automobiles registered in the state, 8,419 motorcycles and 1,772 trucks of 4,000 pounds and over; while the car license fees collected by the state amounted to $442,244, and the fees for drivers' licenses to $144,418.

* * *

The manufacture of machinery required in the production of tires, etc., is also well established in Trenton, and a local motion picture theatre has been featuring a set of films showing the making of automobile tires by the DeLaski and Thropp method, a process originating in Trenton and now in use by six of the leading Trenton tire concerns, as well as by 29 other tire manufacturers in this and other countries, patents having been issued in the United States, Canada and all foreign countries. The pictures showed the entire process of tire manufacture, from the crude rubber to the finished product.

Clifford W. Lee, who had been in the employ of the John E. Thropp's Sons Co. for the past twenty years, lately occupying the position of head bookkeeper, died at his home, 230 Jackson street, this city, on March 5, in the thirty-eighth year of his age. He was a member of the Second Presbyterian Church, of the Trenton Lodge F. & A. M. and of Trenton Council O. U. A. M. He is survived by his wife and three children.

* * *

The superintendents and foremen of the plant of the John A. Roebling's Sons Co. at Roebling, recently held their sixth annual banquet at the Roebling Inn. The entertainment was furnished by the Roebling orchestra, assisted by three colored cabaret singers, and Judge Rees officiated as toastmaster.

* * *

The Howard Demountable Rim Co. is now making a special offer to Ford car owners, fitting this popular priced machine with Trenton-made rims at prices which have proved equally popular.

* * *

The Michelin Tire Co., at Milltown, is evidencing much interest in the formation of an athletic association among its employes, the object of which shall be to promote interest in all kinds of athletic sports. It is understood that a tract of ground has been purchased by the company for the purpose of conversion into an athletic field, and that grandstand, bleachers, etc.,

are to be erected from which to view baseball, tennis, soccer and other games as indulged in by the Michelin employes. The Michelin baseball team, which last season won the championship of the New Brunswick Factory League, is to be backed again this season by the company.

THE RUBBER TRADE ON THE PACIFIC COAST.

By our Regular Correspondent.

A MAP of Central California is now being distributed by the Fisk Rubber Co., of Chicopee Falls, Massachusetts, either on request to the home office or through its branches. This is a most comprehensive road map, showing besides, in colors, the mountain and valley districts of the section, and calling attention to many points of interest—and it gives the motorist a fine conception of the country through which he may travel.

The new building of the Fisk company at Tenth and Hope streets, Los Angeles, was completed, with up-to-date fixtures and special machinery for the repair and service departments, early in March, and this branch of the company's business, under the management of C. O. DuMars, is now well established in new and appropriate quarters.

* * *

The Hendrie Rubber Co., of Torrance, has closed a deal with the McElroy Bennett Co., of Los Angeles, by which the latter company is to purchase during 1914 $100,000 worth of Hendrie tires, acting as Los Angeles agents for the sale of this company's product.

The display made by the Hendrie company at the automobile show recently held at Salt Lake City, Utah, was one of unusual interest among many interesting exhibits. It included a small rubber tree from South America and a quantity of crude rubber and visitors to the booth were shown each step in the manufacture of rubber tires. The exhibit stimulated interest in and sale of the Hendrie tire, which is distributed locally through a branch store at 210 South West Temple street, managed by R. F. Orlob.

* * *

The Universal Tire Co., of Los Angeles, has purchased at a cost of $35,000 property in the city of Anaheim, California, which is to be used for a tire manufacturing plant. This property consists of eight acres of land just south of the town, together with a large brick structure known as the old Dryfus Winery building, used as a storehouse for the past twenty-five years but which is a landmark of the early wine industry of the district. The deal for this property was negotiated by the president of the Universal company, H. H. Holdaway, and by the secretary, Irving Y. Biglow, who state that an initial equipment of machinery to the value of $75,000 will be installed immediately, that the company expects to have the plant in operation by June 1 and that within a few months the force of operatives will probably number from 200 to 500. This is one of the largest commercial enterprises that has ever located in Orange county, and the property covered by the purchase is especially suited to the purpose of such an industry.

* * *

The building mentioned in the February number of THE INDIA RUBBER WORLD as being under construction for the San Francisco branch of the Federal Rubber Manufacturing Co., has been completed, and this branch is now located in quarters as attractive and commodious as are enjoyed by any such concern in the west. The building is two stories high, situated at Van Ness avenue near Sutter street, and is of reinforced concrete. The offices and salesrooms are on the street floor, the second floor being devoted to storage of tires, which are carried on steel racks and shelves, an innovation in this part of the country. This branch, of which E. L. Rittig is the manager, was established a year ago.

C. E. Mathewson, who for the past ten years has had charge of the Diamond tire business of the west, with headquarters in San Francisco, has severed his connection with that company, his resignation taking effect on March 21, so that he might take a steamer for Japan which sailed on that date. Mr. Mathewson has been one of the most prominent men in the industry here, and while declining to go into details regarding his plans for the future, he states that on his return from a trip around the world—which will occupy several months, and on which he is accompanied by his wife—he expects to go into business for himself.

* * *

The automobile tire dealers of Fresno, California—who number about twenty—are forming an association, the purposes of which are: To protect the interests of all dealers; to prevent price cutting and granting of discounts, and to increase business and service efficiency.

* * *

W. B. Guyton, agent in southern California for the Swinehart Tire & Rubber Co., of Akron, with offices at 1013 South Main street, Los Angeles, visited the factory of the company early in March. Altho connected with the company for some time, this is the first visit he had made to the plant, and his enthusiasm has been considerably increased as a result of the investigations and observations he made there.

* * *

The Pacific Tire & Supply Co. has been incorporated in the state of Washington, with a capital of $700,000, of which $200,000 has been paid in in cash, to manufacture tires for pleasure cars and trucks as well as rubber belting. The plant is to be located at Seattle and at the start will probably have a capacity of about fifty tires a day. The head of the new concern is B. L. Gates, prominent in the financing of several important Seattle concerns, who is said to be at present engaged in negotiations for machinery and skilled tire makers to take charge of various departments.

* * *

The Chanslor & Lyon Co., of Seattle, Washington—agents in the Pacific Northwest for Lee tires—has recently appointed A. M. Peterson manager of its tire department. Mr. Peterson will have under his supervision the trade of Washington and Idaho. He is well acquainted with the trade of that section, having been previously identified with several of the other large Seattle tire concerns.

It is understood that the Firestone Tire & Rubber Co., of Akron, is soon to commence the erection of a permanent home for its Seattle branch, now operating under the management of Ed. Champion.

* * *

Announcement is made of the opening by the United States Rubber Co. of California of a branch store at 1055 Second street, San Diego. L. A. Hilton is manager of the new branch, which carries complete stock of automobile, bicycle and motorcycle tires, as well as automobile sundries.

H. A. Farr, manager of the Seattle branch of this company, in speaking of the service which the "Nobby Tread" tire gives its users, mentions a letter received by him from the Smythe Auto Service Co., of Eureka, California, operating stages between that city and Fort Seward and Longville, connecting with the Northwestern Pacific railroad. In this letter the statement is made that experiments in securing tires for use on cars traveling over some of the worst roads in the state have led to the conclusion that the "Nobby Tread," because of its reliability in every-day use, is the logical tire for rough mountain work.

The seventeenth annual meeting of the American Society for Testing Materials—now comprising 1,649 members, or 75 more than the membership of a year ago—will be held from June 30 to July 4 of this year at Atlantic City, New Jersey, with headquarters at the Hotel Traymore.

RUBBER CONSUMPTION PER HEAD OF POPULATION.

IN the annexed table the geographical consumption of rubber is shown for the years 1912 and 1913. The consumption per head of population is also given. From this table, compiled by the "World's Rubber Position," it will be seen that the United States and Canada lead with a consumption equaling 1.06 pounds per head, while England comes second with .88 pound. It is of interest to note the increase of about 20 per cent. in the English figure, while the American rate has slightly receded in 1913 as compared with 1912.

GEOGRAPHICAL CONSUMPTION OF RUBBER DURING 1912-13, AND ESTIMATED CONSUMPTION PER HEAD OF POPULATION.

	1912, Tons.	Per cent.	Per head (in lbs.)	1913, Tons.	Per cent.	Per head (in lbs.)
United States and Canada	47,500	48	1.08	47,200	44.6	1.06
Germany, Austria, etc....	16,000	16.2	.31	16,600	15.8	.32
Great Britain	14,500	14.7	.72	18,000	17.2	.88
France	10,000	10.1	.56	9,000	8.6	.504
Russia	9,000	9	.12	11,500	10.9	.15
Italy, etc.	1,000	1	.064	1,370	1.2	.087
Japan and Australia.....	1,000	1	.04	2,000	1	.08
Total	99,000			105,670		

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta percha for the month of December, 1913, and for the first eleven months of five calendar years, beginning January 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
December, 1913....	$159,118	$83,599	$617,787	$860,504
January-November..	2,327,725	1,207,130	7,659,060	11,193,915
Total, 1913.....	$2,486,843	$1,290,729	$8,276,847	$12,054,419
Total, 1912.....	2,529,843	1,358,222	7,883,786	11,771,851
Total, 1911.....	2,276,511	1,686,092	7,140,140	11,102,743
Total, 1910.....	2,056,944	2,266,137	5,681,486	10,004,567
Total, 1909.....	1,800,300	1,653,466	4,413,626	7,867,392

The above heading, "All Other Rubber," for the month of December, 1913, and for the first eleven months of three calendar years, beginning January 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
December, 1913.....	$295,474	$50,009	$345,483
January-November	3,615,214	548,596	4,163,810
Total, 1913.....	$3,910,688	$598,605	$4,509,293
Total, 1912.....	3,222,133	608,530	3,830,663
Total, 1911.....	2,458,177	561,330	3,019,507

EFFECTS OF LOWER DUTIES ON RUBBER GOODS IMPORTATIONS.

A comparison of the United States imports of manufactures of rubber for the last three months of 1912 and 1913 shows the following results:

	1912.	1913.
October	$74,165	$122,417
November	104,671	94,167
December	73,295	128,735
Total	$252,131	$345,319

The above figures illustrate the effect of the new tariff which went into effect on October 3, 1913.

THE UNITED STATES RUBBER ANNUAL MEETING.

THE annual meeting of the United States Rubber Co. was held in New Brunswick, New Jersey, on March 17. President Samuel P. Colt submitted his report—which is given in full on another page. There were two vacancies in the Board of Directors to be filled—one caused by the death of J. Howard Ford, and the other by the resignation of E. C. Benedict, who is retiring from his various business interests because of advancing years. Only one new director was elected, as it was decided that the board should consist of twenty instead of twenty-one directors. The new director is Colonel Samuel M. Nicholson, of Providence, president of the Nicholson File Co. and interested in various other business enterprises in that city. The Board of Directors for the coming year is as follows: Walter S. Ballou, James C. Brady, Nicholas F. Brady, Samuel P. Colt, Harry E. Converse, James Deshler, James B. Ford, Frank S. Hastings, Francis L. Hine, Henry L. Hotchkiss, Arthur L. Kelley, Lester Leland, D. Lorne McGibbon, Samuel M. Nicholson, Raymond B. Price, Homer E. Sawyer, William H. Truesdale, Theodore N. Vail, John D. Vermeule and Elisha S. Williams.

At the meeting of the new Board of Directors, on March 20, the following officers were elected for the ensuing year: Samuel P. Colt, president; James B. Ford, vice-president; Lester Leland, vice-president; Elisha S. Williams, vice-president in charge of tire and mechanical department; Homer E. Sawyer, vice-president in charge of footwear department; Raymond B. Price, vice-president in charge of development department; W. G. Parsons, treasurer; Samuel Norris, secretary; E. J. Hathorne, assistant treasurer; John D. Carberry, assistant secretary.

It will be noticed from the above list that the number of vice-presidents has been increased from two to five.

RUBBER GOODS FOR FLOODS.

In the spring of the year many localities in this country are liable to floods. One has only to think back a year to recall the harrowing scenes that occurred along the Ohio, where the overwhelming overflow from the river caused so much damage to property, not to mention sacrifice of human lives.

A writer in a German rubber paper recently discoursed at some length on the subject of inundations and the precautions that should be taken by rubber dealers in localities frequently, or even occasionally, visited by floods to be prepared for the emergency. His observations, and especially his advice, being applicable here quite as much as on the Continent, may be worth repeating in condensed form.

Floods, the writer observed, may be sudden and unexpected in their nature or they may be periodical events to be looked for with the melting of the snow in particular districts. In either case the reports usually indicate how unprepared for such dangers were those whose lives and property were at stake. Life-saving appliances are often lacking in such cases—losses of human life, of animals and of valuable property resulting.

The rubber industry manufactures a number of appliances for the saving of both life and property. Attention has been called in Germany to portable folding rubber boats always ready for use. Life-saving bags, swimming belts and other similar articles should always be at hand in such localities as are specially exposed to the risk of inundation, and it behooves every manufacturer, dealer and retailer to recognize this fact and to be guided by it.

In case the articles are not generally known in the districts affected it is high time to bring them to the notice of the local trade. Among other appliances are oxygen apparatus for the attempted resuscitation of those who have been immersed in water, by inducing artificial respiration. These should always be kept in working order. A material service would be rendered by the rubber trade devoting attention to this subject, particularly in connection with those districts liable to periodical floods.

The Report of the United States Rubber Co.

THE report issued by Colonel S. P. Colt, president of the United States Rubber Co., date of March 17, 1914, cannot correctly be called an annual report, as for the most part it covers the nine months between April 1 and December 31, 1913, inclusive, the company's fiscal year having been changed to the calendar year so that the statements of the main company and its subsidiaries might conform.

While an exact comparison cannot be made between this report and former reports, which cover the full year, it is possible to make a sufficient comparison to show that the company has had a very successful season, its net sales for nine months coming within about $4,000,000 of the sales for the preceding twelve months. The treasurer's report shows cash on hand as nearly $10,000,000, as compared with $7,500,000 at the end of last March; and during the nine months covered the value of the plants and properties of the company increased from $105,000,000 to $118,000,000, through the inclusion of the Canadian plant and the Sumatra plantation. The report in full is given below:

To the Stockholders of the UNITED STATES RUBBER CO.:

At the last annual meeting of the stockholders, the by-laws of the company were amended so as to fix the third Tuesday in March as the date for the annual meeting and to make the fiscal year of the company and of all subsidiary companies to conform to the calendar year ending December 31, in order that there might be given to our stockholders a consolidated statement relieved from the complication of variations in fiscal years.

This year's financial statement which for the first time is such a consolidated statement of the United States Rubber Co. with all of its subsidiaries, covers the period of nine months from April 1 to December 31, 1913, with the additional three months' operations from January 1 to March 31, 1913, in the case of certain subsidiaries whose fiscal year had previously ended on December 31. Hereafter the report will cover the operations of all companies for an identical calendar year and thus simplify comparison.

The treasurer's report, appended hereto, gives the consolidated general balance sheet of the United States Rubber Co. and all its subsidiary companies as of December 31, 1913, and the consolidated income statement of the United States Rubber Co. and all its subsidiary companies for the nine months period from April 1 to December 31, 1913, including three additional months of certain subsidiaries.

Through the adoption of one uniform fiscal year for the United States Rubber Co. and all of its subsidiaries and through a single consolidated statement from which are eliminated all inter-company debits and credits, our stockholders may easily obtain a clear and concise understanding of the combined assets and liabilities of the company and the result of its operations.

It is the desire and intent of the management to give to the stockholders the fullest possible information concerning the business of the company, not only annually, but, in due course, semi-annually and ultimately by quarterly reports.

FINANCIAL POSITION OF THE COMPANY.

As will be seen by the asset and liability report, the company's financial position is strong, the cash on hand being approximately ten million dollars. Eliminating from the current liabilities those which in the regular course of business would always be outstanding, namely, merchandise accounts payable neither due nor subject to discount for prepayment, acceptances given in connection with the importation of crude rubber and accrued interest, taxes, etc., amounting together to $6,101,379.87, the cash on hand is about fifty per cent. of the remaining current liabilities.

PLANTS AND PROPERTIES.

The increase from about $105,000,000 last year to about $118,000,000 this year of plants, properties, etc., is occasioned by the inclusion of the Canadian plants and the Sumatra rubber plantations, with the enlargement of the Morgan & Wright tire plant at Detroit and some minor construction.

As heretofore stated, it has not been the custom of our company to make specific charges for depreciation of properties, but on the other hand our many plants are maintained in the highest state of efficiency—all repairs and replacements being charged to expense account.

VOLUME OF BUSINESS.

The year 1913 was a year of declining prices. Consequently the same quantity of manufactured goods would represent a less amount in dollars and cents. The volume of business of the company as a whole was somewhat larger for the nine months of 1913 than for the corresponding period of 1912. Through our "United States Tire Co." there was a substantial increase in tire sales. There was some falling off in volume of sales of footwear, due to the mild weather and lack of snow prior to December 31, but some increase in the sales of mechanical goods, both in quantity and value. Attention might be called to the fact that what was lacking in "rubber weather" early in the winter has been fully supplied by the snowstorms of February and March. The benefit therefrom will appear in the report for the coming year.

PROFITS.

For the period named, the net profit before deduction of interest charges was $9,677,532.81, after deduction of interest charges $7,140,125.01. The dividends declared during the period on the preferred stock and the common stock of the United States Rubber Co. and minority stock of subsidiaries were $5,328,856.50, leaving for the period a surplus of $1,811,268.51. Of this surplus it is estimated that $764,656.93 was earned in the first three months of the year 1913 by subsidiaries whose fiscal year formerly ended December 31. This being deducted leaves $1,046,611.58 as representing the surplus earnings for nine months from April 1 to December 31, 1913, over dividends declared for the same period. Considering the sharp reduction in the prices of tires, the absence of snow during November and December, a general declining market for both crude rubber and manufactured goods, and business conditions throughout the country—this statement of earnings may be considered gratifying.

CAPITALIZATION.

The common stock of the company is the same as on March 31, 1913. Under the plan of conversion into first preferred stock, the second preferred stock has been reduced $358,400 and there is now outstanding but $622,800 of second preferred stock. Under the offering made to our stockholders in November last $1,741,000 was added to the first preferred stock and $39,800 was added from time to time in exchange for Rubber Goods preferred stock.

UNIFICATION OF COMPANIES.

As indicated by the financial statements, whereby the assets, liabilities and operations of all our companies are brought into a single statement, it is the policy of the company to unify all of its operations, and to this end steps have been taken to connect the name "United States Rubber Co." with the subsidiary companies, so that there may be no doubt that the United States Rubber Co. is the responsible head and that its name shall indicate the integrity of its merchandise and evidence the highest business principles.

Our plants are maintained at the best standard of working capacity. By earnest co-operation in the application of industry, research and scientific principles, we are steadily developing a higher degree of efficiency and successfully solving the many complex problems inherent in our business. Our development department is assisting in perfecting the quality of our production and the standardization of our plants, equipment and methods. The growing cheapness of crude rubber is opening new and promising fields of investigation and exploitation. The crude rubber from our plantations in Sumatra, of which so far we have received samples, will be arriving in some quantity before the end of this year; and, as more trees come into bearing and all increase in age, the quantity will rapidly increase from year to year. Under normal business conditions, these facts constitute a most promising outlook for the future of our company.

CONCLUSION.

Your president desires again to express his appreciation of the continued fidelity and ability shown by the officers, heads of departments and employes of the company and its subsidiaries. With our profit sharing plan in force and other efforts put forth by our board of directors and executive committee to further the interests of all in the service of the company, the loyalty, devotion and co-operation of all employes were never greater than today.

During the year we have lost by death two of the most useful and prominent members of the board—Mr. Frederick M. Shepard, a director from the organization of the company and at one time its president, and Mr. Anthony N. Brady, who,

both as director and a member of the executive committee, was most active and helpful in promoting the business of the company for the past ten years. These vacancies upon the board were filled by the election of Mr. Brady's two sons, Mr. Nicholas F. Brady and Mr. James C. Brady.

We also most deeply regret to announce the sudden death on March 2 of Mr. J. Howard Ford, who was closely identified with the various interests of our company, and who served it most conscientiously as a director from the time of its incorporation. Respectfully submitted,

Samuel P. Colt, President.

TREASURER'S REPORT.

United States Rubber Co. and Subsidiary Companies.

ASSETS.

Property, plants and investments, including rubber plantations..		$118,882,026.92
Inventories, manufactured goods and material	$36,343,324.28	
Cash	9,990,158.91	
Notes and loans receivable	1,676,469.34	
Accounts receivable	22,926,827.53	
Securities, including stock of U. S. Rubber Co. held by subsidiary companies	6,584,180.77	
Sinking fund cash in hands of trustees	422,541.35	
Miscellaneous	2,213,242.41	80,156,744.59
Total assets		$199,038,771.51

LIABILITIES.

Capital stock, first preferred	$59,330,900.00	
Capital stock, second preferred	622,800.00	
Capital stock, common	36,000,000.00	$95,953,700.00
Minority Rubber Goods Mfg. Co. stock, preferred $1,556,300.00, common $60,000.00, subsidiary of Rubber Goods Co., $37,500.00	1,653,800.00	
Minority Canadian Consolidated Rubber Co., Ltd., stock, preferred $285,880.00, common $219,420.00, subsidiary of Canadian Co. $9,200	514,500.00	2,168,300.00
Ten-Year 6% Collateral Trust Sinking Fund Gold Bonds, U. S. R. Co.		17,500,000.00
Ten-Year 4½% debentures, General Rubber Co.	9,000,000.00	
Ten-Year 5% debentures, Eureka Fire Hose Mfg. Co.	970,000.00	
Forty-Year 6% Collateral Trust Gold Bonds, Canadian Consolidated Rubber Co., Ltd. $2,590,800.00		
Less owned by subsidiary co. 203,000.00	2,387,800.00	
Mechanical Rubber Co. and N. Y. Belting & Packing Co. Bonds	953,000.00	13,310,800.00
Notes and loans payable		19,905,837.00
Acceptances for importations of crude rubber	2,275,430.63	
Merchandise accounts payable	3,274,340.44	
Accrued interest, taxes, etc.	551,608.80	6,101,379.87
Reserve for dividends	1,736,040.00	
Reserve for redemption of bonds	382,295.77	
Insurance fund reserve	619,570.49	
Employers' accident fund	150,463.53	2,888,369.79
Reserve for depreciation		7,000,000.00
Fixed surpluses (subsidiary companies)		15,080,880.78
*Surplus		19,129,504.07
Total liabilities		$199,038,771.51

*Of this surplus $350,156.15 pertains to minority stock interests.

Consolidated Income Statement for Nine Months* Ending Dec. 31, 1913.

Net sales, footwear, tires, mechanical and misc.		$87,349,692.30
Deduct:		
Cost of manufacture, selling, general expenses and taxes		76,662,081.90
Operating profits		$10,687,610.40
Other income, (net)		97,141.69
Total income		$10,784,752.09
Less:		
Cash discount allowed customers for prepayment (net)	$624,241.14	
Deductions for bad debts	311,875.31	
Federal income tax 1913	171,102.83	1,107,219.28
Net income prior to interest charges.		$9,677,532.81
Interest on funded and floating debt.		2,537,407.80
Net profits		$7,140,125.01
Dividends—United States Rubber Co.	$5,138,092.00	
Dividends to minority stockholders R. G. M. Co. and subsidiary Co.'s and Canadian Consolidated Rubber Co. and subsidiary Co.	190,764.50	5,328,856.50
**Surplus for period		$1,811,268.51
Additions to surplus—capital gain in conversion of second preferred into first preferred stock	89,600.00	
Surpluses of subsidiary companies not heretofore consolidated and adjustment due to change of fiscal year to close December 31st (net)	492,898.76	582,498.76
		$2,393,767.27
Surplus, beginning of period		16,735,736.80
Surplus, December 31, 1913		$19,129,504.07

Respectfully submitted,

W. G. Parsons, Treasurer.

*Certain subsidiaries twelve months.
**Of this surplus $10,939.98 is applicable to minority stock interests.

COMBINATION OF ASBESTOS COMPANIES.

The Mid-West Asbestos Co., formed February 24 at Denver, Colorado, with a capital stock of $8,000,000, has taken over the interests of four other large concerns, viz.: The International Asbestos Mills & Power Co. (capital $5,000,000); the Northwestern Asbestos Mills Co. (capital $5,000,000); the North American Asbestos Co. (capital $10,000,000), and the Wyoming Consolidated Asbestos Co. (capital $5,000,000). The area controlled by the combined companies comprises 2,260 acres of what is said to be the richest asbestos land in the world and to be the best field of its kind in the United States. It is located in Natrona county, Wyoming. Some of the properties have been worked for several years and are now shipping to eastern manufacturers, but much more extensive operations are contemplated, including the erection of a plant at Denver, new factories in Kansas City and on the Pacific Coast, besides aerial trams and railroad construction. The officers of the new company are: W. E. Bates, president; Louie F. Spratlen, first vice-president; H. P. Waterman, second vice-president, and C. H. Poole, secretary—all of Denver.

Raw asbestos to the value of $61,216 was exported from British South Africa during the first nine months of 1913. Exports of this mineral for the same period of 1912 reached a value of $68,141.

Asbestos exports from the island of Cyprus started in 1906 with 43,000 pounds, increased to 1,000,000 pounds in 1910, and to 1,750,000 pounds in 1912.

POEL AND ARNOLD'S JUDGMENT AFFIRMED ON APPEAL.

IN the suit brought in 1911 by Messrs. Poel and Arnold, the New York crude rubber importers, against the Brunswick-Balke-Collender Co., of Muskegon, manufacturers of billiard tables, the judgment in favor of plaintiffs has been affirmed with costs by the Appellate Division of the Supreme Court.

The action was to recover damages for the breach of an executory contract for the purchase of about twelve tons of Upriver Fine Para rubber, the principal questions litigated on the trial and appeal being whether the plaintiffs had established a contract valid within the statute of frauds, the authority of defendant's agent to make the contract and concerning the measure of damages.

A Mr. Kelly represented the plaintiffs' firm in selling rubber, his negotiations having been with a Mr. Rogers, the purchasing agent of the defendants, with an office at their Long Island City factory. Prior to the transaction in litigation, Rogers had negotiated seven purchases of rubber by the defendants from the plaintiffs' firm through the said Kelly, between November 24, 1909, and March 31, 1910.

On April 2, 1910, Rogers made an offer of $2.42 per pound for 12 tons, deliverable from January to June, 1911, in equal monthly shipments. This offer was acknowledged same day and was accepted by plaintiffs' contract of the 4th, being further confirmed by defendants' order sheet of the 6th. In the opinion of the court the parties then considered the transaction closed, their minds having met on the terms of the contract. In the seven prior sales of rubber, plaintiffs had forwarded to the defendants contracts in the same form as in this case. The rubber embraced in these seven contracts was delivered to the defendants and paid for by them.

On January 7, 1911, the defendants wrote a letter to the plaintiffs, which, in the opinion of the court, supplied any omission in the previous evidence. This letter, among other points, stated that the defendants had no knowledge of Rogers' action as to effecting the transaction in litigation, until his voluntary statement within the preceding few weeks, adding that they would not recognize this or any transactions entered into with Rogers without their knowledge or authority. This letter clearly recognizes that a transaction had been *effected*, while the defendants merely disclaimed Rogers' authority to *effect* same.

In further support of the authority of Rogers to make this contract in litigation, Mr. Arnold, one of the plaintiffs, testified that prior to any of the purchases Mr. Troescher, secretary and treasurer of the defendant company, had informed him "that Mr. Rogers did the buying for the company." Kelly testified as to a like statement made to him. It was also proved that Rogers had made four contracts for fourteen tons of rubber with the New York Commercial Co. for the defendants, all of which had been received and paid for by them. The court expressed the opinion that it was too late for the defendant to be heard to question Rogers' authority to make the contract in litigation.

About two tons of rubber arrived at New York on January 24, 1911, but the defendants refused to accept it. It was then sold on January 26 at the market price of $1.27 per pound. The plaintiffs elected to regard the defendants' letter of January 7, 1911, and the rejection of the delivery, as constituting a total breach of the contract and on February 1, 1911, commenced this suit.

In each of the five months succeeding January, tenders were made to the defendants of the rubber specified in the contract, and in each instance advice given of sale, the defendants being notified the first month that plaintiffs would hold them liable for all damage of any kind caused by their breach of contract.

The concluding words of the court's decision are:

"We find no error to the substantial prejudice of the defendants. It follows that the judgment should be affirmed with costs."

ACTION OF ACID MINE WATER ON INSULATION OF ELECTRIC CONDUCTORS.

IN mining work it often happens that an electric conductor is exposed to the action of moist air and acid water. While all conductors used in mines are not insulated, some are; this course being necessary whenever multiple-conductor cables are used. The Bureau of Mines has been investigating the action of acid water on the various materials used for insulation, this task having been performed by H. H. Clark and L. C. Ilsley, whose preliminary report has been published.

The report deals under various heads with the selection and application of the acid water, the dimensions of conductors, the materials tested, the testing equipment and the results of the tests.

Seeing the difficulty of obtaining uniform samples of mine water (owing to changes effected by rainfall and other causes), it was decided to use two artificial solutions, both to contain sulphuric acid in equal amounts, but only one to contain iron sulphate. Solution No. 1 contained 262.35 grains per gallon of free sulphuric acid. Solution No. 2, in addition to the same amount of acid, contained 699.6 grains per gallon of ferrous sulphate. It was hoped thus to define the action of the sulphate. The insulation was to be sprinkled with the solution, time being allowed for evaporation between each application; while the conductors tested would contain the smallest amount of material consistent with satisfactory results.

Four kinds of insulating material were tested—Thirty per cent. Pará rubber, standard varnished cambric, special varnished cambric, lead-sheathed paper. The dates of measurement were nineteen in number, between December 30, 1910, and January 14, 1913. The temperature of the water was 24 degs. C. and the insulation resistances were as below:

INSULATION RESISTANCE IN MEGOHMS.

	Rubber.		Standard Cambric.		Special Cambric.		Lead-sheathed Paper.	
	Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2	Tank 1	Tank 2
Dec. 30, 1910..	46,300	49,100	2,400	2,085	1,340	1,490	750,000	74,300
Jan. 14, 1913..	22,800	22,400	3.6	1.9	42.0	16.5	795,200	67,200

(Progressive decrease of the insulation resistance shown in original table with dates of tests.) Tests with lead-sheathed paper commenced March 11, 1911.

The samples under test were submerged in water at least 24 hours before the measurements were taken. The rubber samples when first immersed had a good weatherproof finish, but by March 15, 1912, the weatherproof covering was practically destroyed. It appeared to deteriorate most rapidly at those points where the acid solutions evaporated.

A series of high potential tests was made, as a result of which the authors state: "The rubber insulation undoubtedly withstood better than the cambric and special insulations the treatment accorded to all. The percentage of decrease in insulation was far less in the case of the rubber samples than in the case of either the cambric or the special samples, and at the end of the test insulation resistance of the rubber samples was comparatively high (more than 20,000 megohms). The breakdown voltage of the rubber insulation held up well also. The cambric samples were the most affected by the treatment, for although both cambric and special samples decreased in insulation resistance to less than 2 per cent. of their original values, the breakdown strength of the special samples was well maintained throughout the test, whereas all but one of the cambric samples broke down on high potential during the test."

THE WASTE MATERIAL DEALERS DINE.

WASTE material—often irreverently referred to as junk—must be wholesome provender, for the National Association of Waste Material Dealers, which on March 17 celebrated its first birthday, is assuredly a very husky infant.

This celebration took the form of a dinner at the Hotel Astor, New York. The toastmaster was Mr. Theodore Hofeller, who acted as president of the association during its first year. Mr. Hofeller gave an admirable address full of information regarding the work done by the waste material dealers of the United States. He showed the value of the waste collected in the different departments of this industry and quoted figures given by some statistician who has devoted much attention to this subject, showing that the aggregate value of the reclaimed waste in the United States for the past year was $700,000,000. This seems at first blush as a rather large figure, but probably it is not very far out of the way.

Mr. Hofeller then introduced, as the special guest of the evening, the Honorable Curtis Guild, of Boston, who was three

Theodore Hofeller.

times Governor of Massachusetts, once Ambassador to Mexico, and more recently Ambassador to Russia—to say nothing about future political honors that undoubtedly await him. Anybody who has heard Mr. Guild speak knows what an excellent speaker he is—as he well might be, from the years of extensive experience that he has had in the cultivation of this art. Incidentally, he is the proprietor of the "Commercial Bulletin" of Boston, which made his choice as chief speaker at this function eminently appropriate.

Mr. Guild began by reciting some humorous incidents connected with his political campaigns, and particularly with the campaign that he made with Mr. Roosevelt when the latter was running for the presidency. He then took up the subject of the evening, beginning as follows:

"I congratulate you most heartily on the success of this thriving organization, as well as on the eminent service that this great industry renders to the business world and to American industry.

"If praise is to be given to those who conserve our water powers, our forests and our natural deposits of minerals, praise should also be given to those who, by the prevention of the waste of raw material, add to our national wealth, reduce the cost of living, provide new national industries and increase the prosperity of our country.

"Over forty years ago my beloved father was the pioneer in journalism to recognize the importance and the value of this branch of national industry. For years the paper which he founded was the only one in the country to publish any general market report covering the entire industry, yet so swift has been your development that to-day there is scarcely a commercial journal in the United States that does not pay some attention, at least, to a portion if not to the whole of the market in which you are interested."

In his exceedingly interesting address—which took up the history from remote times of waste reclamation—he had this to say about the rubber industry: "The increase in the use of rubber and the corresponding failure in an equal increase of supply, combined with the failure to invent a substitute, would long ago have brought the cost of rubber to so lofty a level that were it not for the reclaiming and utilization of waste rubber, it would frankly be impossible for the poorer people who live in inclement climates to be sheltered as they now are sheltered by comparatively inexpensive waterproof shoes and clothing."

He cited the fact that the census of 1913 shows that while the United States exported rubber scrap to the value of $1,600,000, it imported other rubber scrap to the value of $3,000,000, proving that we were utilizing more of this material in this country than we produce ourselves.

Mr. Guild was followed by Mr. Louis Birkenstein, the newly elected president of the association, who proved himself an entertaining story teller—a happy gift for a presiding officer. Not that his address was all stories, because it had its serious side and not only diverted but instructed the members of the association and their friends. Captain F. H. Appleton, who as president of the Rubber Reclaimers' Club, represented that organization, spoke of the relations existing between the reclaimer and the waste material dealer.

In the cabaret that followed (of a very proper and harmless character) there was a magician who gave some fine examples of converting waste material into various utilities, by extracting greenbacks from a half-smoked cigaret, taking dollar bills from the core of a red apple and filling one of the diner's pockets with playing cards which he immediately took out again in the form of a very much alive and energetically kicking white rabbit.

The association, tho only a year old, has a substantial membership which gives the organization promise of permanence and great success. Its present officers are: President, Louis Birkenstein; vice-presidents, Simon Weil, C. B. White, Edward Stone, H. H. Cummings and William Buxton; treasurer, Mark Sherwin; secretary, Charles M. Haskins.

THE SCRAP RUBBER CLUB ELECTS OFFICERS.

The Scrap Rubber Dealers' Club held its annual meeting in New York, March 17, at which the following officers were elected: Theodore Hofeller, president; Edwards Bers, treasurer; H. H. Cummings, secretary; Paul Loewenthal, first vice-president, and Aaron Bers, second vice-president.

SHALL WE THROW AWAY OUR RUBBERS?

A New Jersey chemical company invites the public to abandon its rubbers. This company is advertising a certain liquid named "Dri-Foot" which it says if applied to a leather shoe will make it absolutely waterproof. It also states that after this waterproof application the shoe is neither greasy nor sticky and that it can be polished as readily as before. If this is true "Dri-Foot" is certainly a desirable commodity; but in view of the long line of waterproofing liquids which have been marching down the corridors of time—none of them in reality so very waterproof—it is quite likely that the sixty million Americans who annually buy rubbers will still continue to do so.

The Obituary Record.

J. HOWARD FORD.

J. HOWARD FORD, for many years president of the Meyer Rubber Co., and a director in the United States Rubber Co. ever since it was organized twenty years ago, died suddenly of apoplexy on the evening of March 2, at his winter

J. HOWARD FORD.

home, the Plaza Hotel, New York. It will be recalled that that date was immediately after the great snowstorm, when the streets were badly drifted and walking extremely difficult. It is thought that Mr. Ford overtaxed himself in going from his office to the hotel. Tho previously his health seemed to be most excellent, he was stricken soon after reaching the hotel and died before his doctor arrived.

Mr. Ford was born in New Brunswick, New Jersey, December 10, 1854, the son of John R. Ford, one of the pioneers in rubber manufacture in this country, from whom he inherited large rubber interests. He was educated at Phillips Academy, Andover, Massachusetts; Williston Seminary, East Hampton, of the same State, and at Princeton and Cornell, besides attending school for some time on the Continent.

He had many other interests besides those connected with the rubber industry and was a trustee of the American Surety Co. and a director of the New York Mutual Gas Light Co. He devoted a great deal of money and much time to a model stock farm which he owned at Stony Ford, Orange County, New York, which was particularly famous for its fine horses. He lived on this farm during the greater part of the summertime, passing the winters at the Plaza Hotel. He was a member of many clubs, including the Union, Union League, New York Yacht and Riding Clubs, and was widely known in the financial and social circles of New York.

He was interested in educational matters and had served for some years as trustee of Rutgers College, New Brunswick, and was the donor of "Ford Dormitory," a handsome structure which he built for the college at a cost of $120,000.

The funeral services were held on the morning of March 6 at the Fifth Avenue Presbyterian Church, the officiating clergymen being the pastor of that church, the Reverend J. H. Jowett, D.D., and the Reverend Ellis Bishop, of Amherst, Massachusetts, a cousin of Mr. Ford.

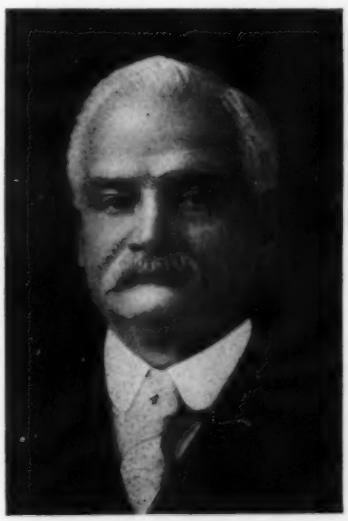
ALFRED HOPKINS.

Alfred Hopkins, president and treasurer of the Boston Gore & Web Manufacturing Co., passed away very suddenly, of heart failure, at his home in Chelsea, Massachusetts, on February 27.

Mr. Hopkins had been connected with the manufacture of elastic goring and elastic webbing since 1862, and he was probably the pioneer manufacturer of these materials in this country. He was born in Leicester, England, in 1841, but when 21 years old came to this country and was largely instrumental in establishing the Goodyear Elastic Fabric Co., of Easthampton, Massachusetts, the first company to make elastic fabric on this side of the water. He became its superintendent and remained with this company for four years, until 1866, when he took charge of the new plant of the American Suspender Co., in Waterbury, Connecticut. He was associated with a number of different gore manufacturing companies from that time until 1893, when he incorporated the Boston Gore & Web Manufacturing Co., of Chelsea, of which he was president and treasurer from the date of its incorporation until the time of his death.

Mr. Hopkins was not only prominent in this particular branch of the rubber industry, but he was extremely active in the civic life of the city of Chelsea. He was prominent in Masonic circles and an active member of the First Congregational Church. The services, which were held in that church March 2, were attended by a very large number of the citizens of Chelsea and neighboring towns.

He is survived by his wife, his son Edmund—who was associated with him in business—and by three daughters—one of whom is the wife of the famous English novelist, E. Phillips Oppenheim.



ALFRED HOPKINS.

A. C. BAKER.

A. C. Baker, for a number of years manager of the London office of the North British Rubber Co. and more recently general manager of that company at Castle Mills, Edinburgh, died at his home at Thames Ditton, Surrey, on March 7, after an illness of several months.

Mr. Baker was 51 years of age and had been associated in one capacity or another with the North British company for many years. He suffered from nervous breakdown several

months ago and since that time had been compelled to relinquish active business cares. He was much esteemed among his associates, because of his straightforward and honorable character, and was generally popular in the rubber trade of England.

GEORGE WESTINGHOUSE.

Probably not one of the ten thousand daily papers published in the United States failed to print a more or less extended reference to George Westinghouse, the inventor of the air brake, who died on March 12, in his 68th year; for this one invention —to say nothing of the many others of which he was the author —added incalculably to the welfare of the human race. During the last thirty years he contributed a great variety of new ideas to the development of many industries, particularly in the direction of utilizing electrical power. But he was always best known by reason of the air brake, which he invented when only 21 years of age and which after many failures he finally succeeded in getting a railroad to try. It was originally tested on a minor branch of the Pennsylvania system. It proved its great value at the first trial and was immediately adopted by all the great railway systems. He is said to have left a fortune of between $20,000,000 and $30,000,000, but this is a very small incident in the life of such a man as Westinghouse, who long since took his place among the great benefactors of mankind.

He was born near Schenectady, New York, October 6, 1846, and died at his home in New York City. His wife and one son, George Westinghouse, Jr., survive him.

WILLIAM B. McELROY.

William B. McElroy, for a number of years identified with the manufacture of rubber footwear, died at his home in Providence, Rhode Island, on March 8, after a protracted illness.

Mr. McElroy was born in Providence June 9, 1854. In November, 1882, he married the daughter of Joseph Banigan, at that time president of the Woonsocket Rubber Co., and often referred to as the "Rubber King." Mr. McElroy became closely identified with many Banigan interests, and was made superintendent of the Hayward Rubber Co. at Colchester, Connecticut, later becoming identified with the Woonsocket Rubber Co., continuing that connection until this company was bought by the United States Rubber Co., in 1893.

In 1899 Mr. McElroy's health began to fail and he retired from active business interests and devoted the rest of his life quite largely to travel. His wife, two sons and two daughters survive him.

JOHN D. LINDSEY.

John D. Lindsey, St. Louis manager of the Kelly-Springfield Tire Co., died in the Deaconess Hospital of that city on March 4, of typhoid fever. Tho associated with the Kelly-Springfield company for some time, he had represented them in Missouri only since last September, having been transferred to this point from Cleveland, Ohio. He was 34 years old and is survived by his wife and a young daughter.

PROPOSALS FOR GOVERNMENT SUPPLIES.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until April 7 for furnishing the following: Schedule 6,517, wash deck hose; schedule 6,518, flexible copper hose and composition unions. Tenders are also invited until April 14, under schedule 6,514, for cotton and rubber insulating tape.

Bids will be received until April 14 by the Bureau of Supplies and Accounts, Navy Department, Washington, under schedule 6,529, for furnishing conveyor belt. Report No. 1,693.

Sealed proposals, in triplicate, will be received at the office of the General Purchasing Officer of the Isthmian Canal Commission, Washington, until April 3, for furnishing supplies, among which are included hose and rubber bands. (Circular No. 835.)

FOREIGN TRADE OPPORTUNITIES.

In calling attention to the market for motor car tires in his district, an American consul states that American manufacturers must pay strict attention to the requirements if their products are to be successfully marketed. He states that if good agents are secured, and the manufacturers are willing to help advertise their goods, there should be a largely increased market for tires. Copy of the complete report, and a list of dealers in automobiles and accessories, may be obtained from the Bureau of Foreign and Domestic Commerce. Report No. 12,639.

An American consular officer reports that a resident of a European country is interested in hospital and sanitary apparatus, perfumery, surgical instruments, material for dressing wounds, cotton gauze, bandages, etc. Correspondence is desired with American manufacturers of these articles. Bank references are furnished. Report No. 12,647.

A report from an American consular officer in Canada states that a firm in his district desires to receive from American manufacturers and exporters catalogs and price lists of fire-fighting apparatus of all kinds, including fire engines (both horse and motor), hook and ladder trucks, hand extinguishers and fire hose. Prices may be quoted f. o. b. appropriate ports. Report No. 12,704.

A dealer in automobiles and accessories in France informs an American consul that he desires to be put in touch with American manufacturers of automobiles and accessories, with a view to representing them in the city in which he is located. Report No. 12,724.

A report from an American consul in Great Britain states that a town council in his district has decided to spend about $7,500 in acquiring a fire engine and equipment. American manufacturers should communicate with either the town clerk or the superintendent of the fire brigade. Report No. 12,779.

RECENT CUSTOMS RULINGS.

According to the ruling of the Board of United States General Appraisers—later confirmed by Judge Smith of the United States Court of Customs Appeals—leather strips of a form and size adaptable for conversion into automobile treads of different lengths and widths are subject to an import duty of 5 per cent., as leather belting, as prescribed in the first part of paragraph 451, with an additional 10 per cent. as being cut into forms. This decision was reached after an appeal by the Michelin Tire Co., which claimed a flat rate of 5 per cent. on imports of this nature as against the duty taken by Collector Malone of 15 per cent. ad valorem, under paragraph 451 of the old law—leather not specially provided for—together with an additional 10 per cent. for leather cut into form for manufacturing purposes.

The protest of J. Einstein and F. L. Kraemer & Co. against a recent assessment on waterproof cloth has been sustained by the board. The cloth—which consists of a fabric composed of two pieces of cotton, one knitted and the other woven, and cemented on gutta percha, with the gutta percha between the pieces of cotton—is intended for use in shoe uppers. It was classified for duty as manufactures of cotton at 45 per cent. ad valorem under paragraph 332 of the 1909 tariff. The importers claimed the goods to be dutiable as waterproof cloth, under paragraph 347, in which claim they were upheld, the rate under this classification being 10 cents per square yard and 20 per cent. ad valorem.

The protest of Gallagher & Ascher, of Chicago, against the assessment at 45 per cent. under paragraph 468 of the tariff act, on circular phonograph records composed of vulcanized india rubber, was overruled by the Board of United States General Appraisers. The importers claimed these articles to be dutiable at 35 per cent. ad valorem under paragraph 464 of the 1909 tariff act, or at 20 per cent. under paragraph 480, but the assessment by the Collector was affirmed.

News of the American Rubber Trade.

THE PICHER LEAD CO. HOLDS ANNUAL CONVENTION.

ABOUT the middle of March an annual convention, which lasted three days, was held by representatives and salesmen of the Picher Lead Co. at the plant at Joplin, Missouri. This company, which was established in 1889 and is claimed to be now the largest concern of the kind in the United States, had an output last year amounting to 30,000 tons, consisting principally of pig lead and white lead for use in the manufacture of rubber goods. The lead ore used in the manufacture of these products comes from Missouri, Arkansas and Washington, most of the crude material being mined in Jasper County, Missouri. In addition to the factory at Joplin—which employs 500 men and has been in constant operation, day and night, for the past two years—the company has well established sales branches in New York, Chicago and Pittsburgh, with warehouses in fourteen of the principal cities of the United States. The annual conventions bring together the sales and manufacturing forces with the officers of the company, who review the work of the past year and prepare plans for the future. While the volume of business for 1913 was the largest in the history of the company, it is expected that this will be exceeded in 1914, due to additions and improvements made during the year. Among these are included increased facilities in the oxide pulverizing and red lead departments, the erection of a pig lead refinery and a two-story laboratory (where seven chemists, each a specialist in some particular branch of the industry, are employed), also a two-story reinforced concrete welfare building for the accommodation of the factory employes—in conjunction with which and in addition to the usual welfare advantages medical treatment is provided, physical tests being made at time of employment and each week thereafter in the case of each employe.

RUBBER COMPANY DIVIDENDS.

On March 4 the board of directors of the Rubber Goods Manufacturing Co. declared from the net earnings of the company the sixtieth regular quarterly dividend of 1¾ per cent. on the preferred stock and a dividend of 3 per cent. on the common stock—both payable March 16, 1914.

The Batavia Rubber Co. has declared a regular quarterly dividend of 1½ per cent. on its preferred stock; also a regular quarterly dividend of 1 per cent., with an additional dividend of ¾ of 1 per cent. on its common stock—both payable April 1 to stockholders of record on March 16.

The Portage Rubber Co. on March 18 declared a quarterly dividend of 1¾ per cent. on its preferred capital stock—payable April 1 to stockholders of record on March 1.

The B. & R. Rubber Co. has declared a regular quarterly dividend of 1¾ per cent. on its preferred stock, payable April 1 to stockholders of record on March 27.

A common stock dividend of 20 per cent. was declared on March 12 by the directors of the Goodyear Tire & Rubber Co.

The Lee Tire & Rubber Co. has declared a quarterly dividend of 1¾ per cent., payable April 10 to stockholders of record on March 20.

The Canadian Consolidated Rubber Co. has declared a regular quarterly dividend of 1¾ per cent. on preferred stock, payable April 1 to stockholders of record March 23.

CAPITAL INCREASE

Notice has been filed by the Dayton Rubber Manufacturing Co., Dayton, Ohio, of an increase of its capital from $150,000 to $1,000,000.

MANHASSET FABRIC MAKES MORE RACE RECORDS.

The product of the Manhasset Manufacturing Co. of Providence made further records for endurance in automobile road racing in the Vanderbilt Cup Race recently held at Santa Monica, California. Tires built of their regular stock Sea Island fabric carried DePalma to victory without a stop, establishing a new record of 75.5 miles per hour for this event. The second, third and fourth cars to finish also had tires made up of the same fabric. The Mason car, finishing in third place, had no tire change, and the Stutz finishing in fourth place had only one change.

This enviable experience of the Manhasset product is a sequel to the reputation gained last season in racing tires. Starting with the Indianapolis Speedway event on May 30, in which the tires carrying Mulford's Mercedes established a new world's record for endurance, going 500 miles at terrific speed without a change, a long series of wonderful tire records were made.

All these tires contained the regular stock fabric of the Manhasset concern.

THE ANNUAL MEETING OF THE RUBBER CLUB.

The annual meeting of The Rubber Club of America, for the election of officers and other business that may come before it, will be held in Boston on April 21. The nominations made for the various offices by the Nominating Committee, to be voted on at that meeting, are as follows: President, George B. Hodgman; vice-president, Frederick H. Jones; treasurer, J. Frank Dunbar; secretary, H. S. Vorhis; honorary vice-presidents, Augustus O Bourn, L. Dewart Apsley, John H. Flint, Alexander M. Paul, Arthur W. Stedman, Henry C. Pearson, Frederick C. Hood; directors, Francis H. Appleton, H. T. Dunn, H. S. Firestone, George E. Hall, Howard E. Raymond, Homer E. Sawyer, Henry Spadone, Elisha S. Williams, Albert Zeiss.

Immediately after the business meeting, and beginning at 7 o'clock sharp, there will be an informal dinner (to cost $2.50 per plate), the business meeting and the dinner both being held at the Art Club. It is expected that there will be several good speakers. Among them will be Col. Henry L. Kincaide, who had charge of the recent Boston Chamber of Commerce excursion to South America, and who will describe what he saw on that memorable trip.

New firm members were elected at the last meeting of the Executive Committee as follows: F. H. Appleton & Son, Boston, Francis H. Appleton, representative; The Quaker City Rubber Co., Philadelphia, Charles A. Daniel, representative; The I. B. Kleinert Rubber Co., New York, Colonel H. A. Guinzberg, representative; The Easthampton Rubber Thread Co., Easthampton, Massachusetts, W. L. Pitcher, representative. Theodore Hofeller, of Buffalo, was elected an associate member.

CHANGES IN THE UNITED STATES RUBBER BRANCH STORES.

The branch store department of the United States Rubber Co. on March 14 announced the following appointments: Edward T. Smith, assistant manager branch stores; S. H. Jones, president Goodyear's India Rubber Selling Co., New York; W. H. Porter, president and treasurer Enterprise Rubber Co., Boston; W. A. North, president and treasurer Pittsburgh Rubber Co., Pittsburgh; Benjamin Robinson, president Maryland Rubber Co., Baltimore; J. S. Hallahan, president Banigan Rubber Co., Baltimore; William Webster, president and treasurer Columbus Rubber Co., Columbus.

A book for everybody interested in tires—"Rubber Tires and All About Them"—this office.

WILLIAM A. DE LONG.

William A. De Long, whose brilliant work in connection with the affairs of the New York Commercial Co., has won the unqualified admiration of financiers of two continents, has long been well known to the rubber trade. His business career began in 1855 in the West Indian house of Josiah Jex, then importing india rubber to New York. For them he visited the rubber-producing countries of Central and South America, and then formed the New York house of William Jex & Co., which was an important factor in early rubber importing for many years. This company, however, terminated its career in 1886, when the firm of De Long, Betts & Co. was formed, with headquarters in New York and a branch house in New Orleans.

William A. DeLong.

Before this time there were very few houses importing rubber alone, and until the late 70's rubber was only an incident in the many varieties of goods brought to this country by importing houses. The firm of De Long, Betts & Co. was one of the first to be devoted exclusively to rubber, and it wielded a wide influence in this field for many years. Always enterprising and ahead of the times, Mr. De Long determined to be independent of ships, sailings, freight rates, etc. In 1880 he built a 1,000-ton steamer of his own. On her first voyage this ship ran on the rocks and was lost. This, however, did not daunt his courage, and two years later he completed a second steamer. This made two successful trips, but was lost on the third. He kept on building and buying and owned no less than fourteen boats during his career as rubber importer. Incidentally, he has crossed the Atlantic more than a hundred times.

In 1894, Mr. De Long retired from De Long, Betts & Co. and became vice-president of the New York Commercial Co., with which firm he remained until January 1, 1901, when he retired from active business. In 1902 he was appointed deputy commissioner of the Department of Water, Gas and Electricity for the Borough of Manhattan, New York City.

In 1908 he became trustee to administer the affairs of Coster, Knapp & Co., New York stock brokers, who were forced into bankruptcy in May of that year. The liabilities greatly exceeded $1,000,000, and the assets at the outset appeared to be almost a minus quantity. However, by his untiring efforts and his ability Mr. De Long saved the creditors many thousands of dollars. In April, 1913, he was appointed trustee of the New York Commercial Co., which went into bankruptcy in February of that year.

Energetic, alert, virile, with a genius for financial problems, coupled with wonderful administrative ability, Mr. De Long is one of the most interesting figures in the rubber trade.

PERSONAL MENTION.

C. B. Whittlesey, manager of the Hartford Rubber Works Co., has recently been elected to the presidency of the Chamber of Commerce of Hartford, Connecticut.

T. Barney Kennard, who has become associated with the City Auto Tire & Supply Co., distributors of Miller tires, 1200 Huron road, Cleveland, Ohio, was formerly manager of the Swinehart Tire & Rubber Co.'s branch in that city. He will act as factory representative in the northeastern section of Ohio.

Otis R. Cook, for the past three years manager of the Cleveland branch of the Kelly-Springfield Tire Co., has been promoted to the position of general sales manager of this concern. He will continue his headquarters at Cleveland. Previous to his association with the Kelly-Springfield company Mr. Cook had been identified for a number of years with the tire sales operations of the Goodrich, Firestone and Federal companies.

E. R. Perkins has been appointed general manager of the Overman Tire Co., New York, succeeding Theo. Reynolds.

Jesse W. Long, who for more than twenty years has been identified with the rubber industry in Naugatuck, Connecticut —for five years with the Goodyear's Metallic Rubber Shoe Co., and since 1897 in the office of the United States Rubber Co. Regenerating Plant in that city—became associated on March 1 with the firm of S. Birkenstein & Sons, scrap rubber dealers of Chicago, Illinois, assuming charge of their eastern branch located in the Times Building (Rooms 1501 and 1502), Times Square, New York City.

C. O. Brandes, manager of the export sales and shipping departments of the Firestone Tire & Rubber Co., of Akron, Ohio—whose portrait appeared on page 83 of the November number of The India Rubber World, accompanying a mention of his connection with this concern—sailed for Europe the first week in March for an extensive tour in the interest of the Firestone company.

W. T. Underwood, instructor in salesmanship for the Goodyear Tire & Rubber Co., has been secured to teach a class in this branch of the educational department of the Y. M. C. A. at Akron. Mr. Underwood's experience especially fits him for such a role.

During the absence in Europe of J. D. Anderson, manager of the United States Tire Co. in New York, J. C. Weston is acting sales manager.

Ralph Upson, of Akron, winner of the international balloon races in Paris last year, will compete in similar races to be held at Kansas City next October, representing on that occasion the Aero Club of America. A national race for the selection of two other American pilots to represent the United States at the international contest will be held at St. Louis on July 4.

J. O. Stokes, president of the Thermoid Rubber Co., of Trenton, New Jersey, is now on a trip to the Pacific coast.

R. M. Merriman, formerly connected with one of the large rubber manufacturers in Akron and more recently associated with the Mishawaka Woollen Manufacturing Co., of Mishawaka, Indiana, in the experimental department, has accepted a position as factory superintendent with the Columbia Rubber Co., Columbiana, Ohio.

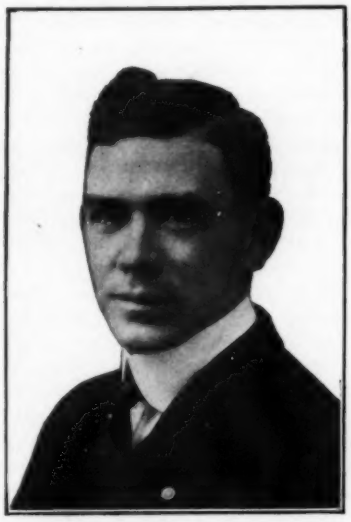
Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Country of the Amazon; What I Saw in the Tropics; Rubber Tires and All About Them, and Rubber Trade Directory of the World.

COMMODORE BENEDICT SAILS AGAIN.

E. C. Benedict, until recently a director of the United States Rubber Co., who arrived in New York harbor on February 18 after an 8,000-mile cruise through the West Indies and up the Amazon, sailed again on March 6 for another five-weeks cruise among the West Indies, taking with him eight or ten guests. The weather conditions in New York and New England during the latter part of February and first of March were so highly unattractive that the Commodore decided that it was preferable to board his yacht, the "Oneida," again, and sail back to a more comfortable clime.

MR. MATCHETT JOINS THE ROBINS CONVEYING BELT CO.

Thomas Matchett, who has been identified with the Republic Rubber Co. since 1904, recently resigned his position as manager of the mold and belt departments to become vice-president and manager of the Robins Conveying Belt Co., of New York, which is closely associated with the Republic company and is a large distributor of conveyor belts.



THOMAS MATCHETT.

MR. GLENDENNING LEAVES THE MANHEIM COMPANY.

W. J. Glendenning, who for the last three years has been connected with the Manheim Manufacturing & Belting Co., Manheim, Pennsylvania, has sent in his resignation, to take effect on April 18. Mr. Glendenning came from England in 1911 to instal machinery at the Manheim plant for the manufacture of balata belting. He had previously been engaged in the manufacture of this sort of belting in England.

TIRE COST IN OPERATION OF FIRE APPARATUS.

In the substitution of motor fire apparatus for horse-drawn equipment the expense of operation—in which tires form a factor—is an important item of consideration. A report submitted to the National Fire Protective Association by a representative of the National Board of Fire Underwriters contains a table of comparative yearly operative cost between horse-drawn and motor-driven machines in which the following figures are given: Hose Wagon—horse-drawn, repairs and tires, $30; Steam Fire Engine, tires and repairs, $70; Two Wheel Tractor, tires, $40; Automobile Hose Wagon, tires, $60; Automobile Combination Pumping Engine and Hose Wagon "Z," tires, $80; Steam Fire Engine and Tractor, repairs and tires, $125.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

MR. RODENBACH RESIGNS FROM THE REGENERATING COMPANY.

Mr. William T. Rodenbach recently resigned from the rubber Regenerating Co., of Naugatuck, Connecticut, with which the reclaiming plant of the United States Rubber Co. lately merged. This does not mean, however, that he is retiring from the rubber industry, for such is far from being the case. He still retains his position as treasurer of Goodyear's Metallic Rubber Shoe Co., a position which he has filled for many years. But his resignation from the Regenerating company indicates that he will no longer take the active part in rubber reclaiming that he has taken in the past. Mr. Rodenbach has been identified with the rubber reclaiming department of the United States Rubber Co., as manager, ever since its formation in 1892, during which time he probably bought a larger volume of scrap rubber—principally old boots and shoes—than anybody else on either side of the water, his aggregate purchases running into the hundreds of thousands of tons, all of which was made into reclaimed rubber under his direction. His personal acquaintance among scrap rubber dealers and collectors practically includes everybody at all prominent in that industry in the United States and Europe.

W. T. RODENBACH.

As Mr. Rodenbach, in addition to his position in the Goodyear company, still maintains his connection with various other manufacturing companies, as, for instance, the presidency of the Naugatuck Manufacturing Co. and the vice-presidency and treasurership of the Naugatuck Chemical Co., and continues his varied interests in the civic life of Naugatuck, his time is still likely to be fairly well occupied.

AVIATORS WITH PARACHUTES SEWED ON.

One great drawback about aviation is the unhappy fact that so many aviators take tumbles of anywhere from 50 to 5,000 feet, with direful—and generally fatal—results. A great many active minds are busy at present on the problem of life-preservers for aviators. A big parachute would serve, except that it is difficult to arrange it so that it will operate when needed. One genius has devised the following scheme: He has made a jacket with front, back and arms covered with inverted pockets—that is, opening down instead of up—and they are made loose and baggy. The theory is that when a man begins to drop all these little pockets will open and catch the air and sustain his weight. They probably would sustain a little of his weight, but it would be a venturesome aviator who would care to drop very far with nothing to break his descent except this parachute jacket.

NEW INCORPORATIONS.

Acorn Insulated Wire Co., February 20, 1914; under the laws of New York; authorized capital, $100,000. Incorporators: Walter V. Donovan, 34 Pine street; Joseph Quittner, 42 Broadway, and Joseph T. McMahon, 27 William street—all in New York City.

Akron Tire & Rubber Co., The, February 16, 1914; under the laws of Massachusetts; authorized capital, $21,000. Incorporators: Max Laserson, Israel Barry and Charles Braunstein—all of 24 Columbus avenue, Boston, Massachusetts. To manufacture, buy and sell automobile tires, rubber, rubber goods and automobile supplies.

American Auto Tire Jobbers, February 9, 1914; under the laws of Pennsylvania; authorized capital, $20,000. Incorporators: Michael E. Hasson, 2128 South Fifteenth street; Hugh B. Turner, 5645 Cedar street, and William H. Denney, 1727 North Sixtieth street—all in Philadelphia, Pennsylvania. To buy, sell and generally deal in automobile tires, tubes, supplies, etc., and to act as jobbers, agents and representatives of firms in buying, selling and generally dealing in said articles.

Columbia Rubber Co., The, February 9, 1914; under the laws of Massachusetts; authorized capital, $50,000. Incorporators: Patrick H. Crowley, Hugh C. Cameron and William F. Crowley—all of 301 Congress street, Boston, Massachusetts. To manufacture and sell men's and women's bathing suits, rubber garments, etc.

F. C. D. Inner Tube Protector Co., February 4, 1914; under the laws of Michigan; authorized capital, $150,000 (amount subscribed, $75,000; divided in shares of $10 each). Incorporators: Frank R. Berry, Hilan N. Cole and Niram B. Sackett—all of Detroit, Michigan. To manufacture and deal in all kinds of rubber, wood and metal goods, and in automobile accessories.

Fisk & Dunham Rubber Co., February 26, 1914; under the laws of New Jersey; authorized capital, $50,000. Incorporators: Clark F. Fisk, Robert C. Dunham—both of Trenton, New Jersey, and Albert A. Taylor, Allentown, New Jersey. To manufacture, purchase and deal in crude rubber and rubber goods in all forms, and also the making, purchasing and selling of rubber tubes, tires, etc.

Hercules Tire Protector Co., January 26, 1914; under the laws of Massachusetts; authorized capital, $10,000. Incorporators: John A. Gilbert, 897 Main street; Elmer Balod, 18 Chilton street—both in Cambridge, Massachusetts—and Adolph E. Elster, 421 Pine street, Dedham, Massachusetts. To manufacture and deal in tire protectors and automobile supplies and accessories, and to conduct an automobile repair shop business.

Indestructible Tire Corporation, March 6, 1914; under the laws of New York; authorized capital, $200,000. Incorporators: Albert L. Potter, 678 West One Hundred and Seventy-eighth street; John A. Inslee, 259 Broadway, and Anselm P. Anderson, 34 Nassau street—all in New York City. To deal in auto tires, etc.

Inter-State Auto Supplies Co., March 5, 1914; under the laws of Delaware; authorized capital, $300,000. Incorporators: F. R. Hansell, Philadelphia, Pennsylvania; George H. B. Martin and S. C. Seymour—both of Camden, New Jersey. To manufacture and deal in merchandise and articles of rubber, etc.

Lincoln Tire & Rubber Co., Inc., March 7, 1914; under the laws of New York; authorized capital, $5,000. Incorporators: Olaf K. Pacht, David Gross and Jacob Cohen—all of 46 West Twenty-fourth street, New York City.

Long Island Tire Co., Inc., The, March 6, 1914; under the laws of New York; authorized capital, $1,500. Incorporators: Marie P. Denton, John S. Denton and Harry E. Wetzig—all of Freeport, New York. To deal in auto tires, etc.

Midgeley Tire & Rubber Co., The, January 28, 1914; under the laws of Virginia; authorized capital, $550,000. Incorporators: A. C. Lewis, 839 North Fourth street; Thos. S. Jones, 1436 Ridge avenue; J. Oscar Naylor, 420 Dock street; Roy R. Carpenter, 1396 Euclid avenue, and D. R. Williams, 489 South Fifth street—all in Steubenville, Ohio.

National Raincoat Co., Inc., January 29, 1914; under the laws of New York; authorized capital, $10,000. Incorporators: Abner S. Werblin, 1427 Madison avenue; Sidney J. Laub, 878 East One Hundred and Seventy-sixth street—both in New York City—and Dora Magida, 1899 Bergen street, Brooklyn, New York.

Dr. Neal's Crescent Arch Supporter Co., March 3, 1914; under the laws of Maine; authorized capital, $200,000. Incorporators: Horace Mitchell (president), H. A. Paul (treasurer) and M. G. Mitchell—all of Kittery, Maine. To deal in arch supporters, rubber devices of all kinds, and to manufacture and deal in footwear, etc.

Panama Tire & Rubber Co., Inc., March 6, 1914; under the laws of New York; authorized capital, $15,000. Incorporators: Arthur E. Schwartz, 222 West Fifty-ninth street; Sidney V. Morris, 302 West Twenty-second street—both in New York City—and George L. Lewis, Whitestone, New York. To manufacture and deal in auto tires, etc.

Penn Yan Cable Co., Inc., February 24, 1914: under the laws of New York; authorized capital, $50,000. Incorporators: Edia R. Ramsey and George S. Shepard—both of Penn Yan, New York; William H. Neefus, East Orange, New Jersey. Office located at Penn Yan, New York. To manufacture insulated cable, ignition wire, etc.

Renault Tire & Rubber Co., Inc., January 27, 1914; under the laws of New York; authorized capital, $25,000. Incorporators: Max Hillman, 835 Kelly street, Brooklyn, New York; David M. Hanley, Hotel Grenoble, Fifty-sixth street and Seventh avenue, and Harry Baumstone, 55 East One Hundred and Eighteenth street—both in New York City.

Van Alstyn Co., Inc., A. T., March 11, 1914; under the laws of New York; authorized capital, $100,000. Incorporators: Albert T. Van Alstyn, 41 Union Square; William C. Mulhausen, 233 Broadway, and Stanley J. Lathrop, 2 Rector street—all in New York City. To manufacture garters, notions, etc.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of the shares of rubber manufacturing companies on March 20 last are furnished by John Burnham & Co., 31 Nassau street, New York, and 41 South La Salle street, Chicago:

	Bid.	Asked.
Ajax-Grieb Rubber Co., common	200	...
Ajax-Grieb Rubber Co., preferred	99	102
Firestone Tire & Rubber Co., common	285	290
Firestone Tire & Rubber Co., preferred	108½	110
B. F. Goodrich Co., common	22½	23½
B. F. Goodrich Co., preferred	87	90
Goodyear Tire & Rubber Co., common	180	185
Goodyear Tire & Rubber Co., preferred	95	96½
Kelly-Springfield Tire Co., common	59	60
Kelly-Springfield Tire Co., preferred	143	145
Miller Rubber Co.	128	133
Portage Rubber Co., common	...	35
Portage Rubber Co., preferred	...	90
Rubber Goods Manufacturing Co., preferred	105	110
Swinehart Tire Co.	69½	70½
United States Rubber Co., common	61⅜	61⅝
United States Rubber Co., 1st preferred	102⅞	103½

The city of Cleveland, Ohio, has awarded to the Safety Insulated Wire & Cable Co., of New York, through its western representatives, M. B. Austin & Co., a contract for approximately $28,000 worth of insulated wire and cable, in connection with the underground fire alarm and police signal system which is being installed in that city.

"PARANITE."

"Paranite" rubber-covered wires and cables, made to meet all requirements of new code specifications, are the specialty of the Indiana Rubber and Insulated Wire Co., of Jonesboro, Indiana, which, by the way, is one of the oldest and most successful rubber mills of the Middle West. The "Paranite" line includes underground, aerial, submarine cables and cables for inside use; telephone, telegraph, fire alarm, electric light and power, wire and cables, all of recognized standard.

TRADE NEWS NOTES.

Hood tires—made by the Hood Rubber Co., of Watertown, Massachusetts—are being distributed in Kansas City, Missouri, by the Rubber Tire Repair Co., at 915 East Fifteenth street, this company, under the management of H. A. Winter, having been given the agency for Missouri, Kansas and Oklahoma.

The American Rubber Co., manufacturers of rubberized clothing, have located at Bush Terminal Building No. 20, Brooklyn, New York, occupying a space in that building equal to 10,000 square feet.

Plans have been accepted and contract awarded for the erection of a new plant at East Palestine, Ohio, for the National Tire & Rubber Co., of that place. The building is to be of reinforced concrete, and work on it is to be rushed with all possible despatch. When finished this plant will represent the highest art of Youngstown architects, engineers and builders, in factory construction.

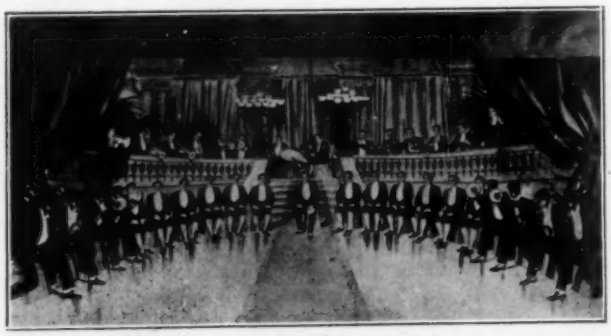
The Schacht Rubber Co., located in Huntington, Indiana, is one of the progressive rubber manufacturing organizations of the Middle West. It started in a small way in 1909 and in five years has achieved a remarkable growth. The Schacht product include plumbers' supplies, marine valves, non-marring rubber mallets and a general line of molded specialties.

UNDERGROUND TUNNEL SYSTEM.

In connection with the completion of the Boston Woven Hose & Rubber Co.'s new mill room and power plant is included a complete system of tunnels connecting all buildings. Electric trucks carry both raw and finished materials under cover and protected at all times, starting from cars on the raw materials siding and ending in the shipping room. A complete system of telephones and an auto. call recently installed make it possible to reach any individual in any of the 16 buildings at any time.

RUBBER MEN GIVE A MINSTREL SHOW.

The employes of the Federal Rubber Manufacturing Co., of Milwaukee, Wisconsin, recently gave a highly creditable minstrel show in one of the large theaters of that city. The performance was attended by many of the prominent citizens of the city, and



The Federal Co.'s Minstrel Men.

the audience completely filled the house. The program contained the usual features of the professional minstrel show and was highly commended by the critics present. The company also has baseball, football, basketball and bowling teams that give a very good account of themselves. These various associations are encouraged by the officers of the company, as they tend to give the employes a certain *esprit de corps*.

PRESENTS ITS EMPLOYES WITH BANK ACCOUNTS.

An announcement has been made by the Detroit Insulated Wire & Cable Co. that as a result of combined efforts the company is able to make distribution of a portion of its profits to its employes, as has been the custom for several years. The amount is deposited in a savings bank and a pass book with his share entered therein is handed to the employe. The company aims in this way to emphasize its belief in the mutual profit arising from continuity of service, the reward being for "faithful and continuous employment."

NEW PLANT FOR RUBBERIZING FABRICS.

The Mercury Rubber Co. is equipping a very complete plant for rubberizing textiles in Bush Terminal building No. 20 in Brooklyn. It is installing the latest machinery for this sort of work and putting in such a complete mechanical, technical and chemical equipment that it expects not only to produce a superior article but to be able to do this in a very large volume. It is expected that the plant will be in operation about May 1.

RUMSEY & GREUTERT INCORPORATE.

Robert Rumsey and Henry J. Greutert, formerly connected with Ed. Maurer, have started a crude rubber importing business of their own at 25 Beaver street, New York, under the name of Rumsey & Greutert Co., Inc. Mr. Rumsey is president, Mr. Greutert, secretary and treasurer, and C. J. Weymer, vice-president of the new corporation.

RUBBER GOODS MANUFACTURING CO.

The annual meeting of stockholders of the Rubber Goods Manufacturing Co. for the election of directors and for the transaction of any other business which may properly be brought before the meeting will be held at the principal office of the company, No. 15 Exchange Place, Jersey City, New Jersey, on Thursday, April 9, 1914, at 12 o'clock noon.

The transfer books will not be closed, but the New Jersey Corporation Law will not allow to be voted at said meeting any share of stock which shall have been transferred after March 20, 1914.

NEW BRANCHES FOR BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

In addition to the branch office recently established by the Bureau of Foreign and Domestic Commerce in New York (room 315 United States Custom House), as mentioned on page 249 of our February issue, similar branches have been established at Chicago (629 Federal Building), New Orleans (Association of Commerce Building) and at San Francisco (76-78 Appraisers' Stores Building); and the suggestion is made by the Department of Commerce that firms in these districts avail themselves of the information on file at these branches, time being saved by making application to them instead of to the bureau at Washington.

AMERICAN CHEMICAL SOCIETY.

The forty-ninth meeting of the American Chemical Society will take place at Cincinnati, from April 7 to 10.

Mr. F. W. Weissman is chairman of the Executive Committee, while the other subjects for administrative attention are being dealt with by some nine other committees. Included in the programme are visits to the American Rolling Mills, Middletown, and the National Cash Register Co., Dayton, Ohio.

A special section will deal with "India Rubber Chemistry" and will be of marked interest. Mr. Doris Whipple, of the Safety Insulated Wire and Cable Co., Bayonne, New Jersey, is the sectional secretary. It is expected that this will be the largest spring meeting the society has ever had.

TRADE NEWS NOTES.

The Marathon Tire & Rubber Co., of Cuyahoga Falls, Ohio, is now distributing its Marathon tires in the New England territory through the Dayton Tire Co., of Boston, Massachusetts.

The United States Tire Co., of New York, has established a tire distributing agency at Huntington, Ohio, under the management of R. W. Mottler, formerly located at Cincinnati.

The Pennsylvania Rubber Co., of Jeannette, Pennsylvania, has favored some of its customers with a very convenient ash tray. It is made of glass, is four inches in diameter, and the raised edge represents one of the company's oil proof tires with the well-known Vacuum Cup tread. The tray is mounted on a piece of felt, so as not to mar the desk. It is a useful article and the company will undoubtedly have requests for all it cares to circulate.

A new form of preventive against blowouts and punctures is being introduced by the K. & W. Rubber Co., of Ashland, Ohio, under the name of the "Maxotire." This protector—which is especially effective with straight side tires—is made of tire fabric and will adjust itself automatically to either new or stretched tires. It is so constructed as to completely surround the inner tube, a cross section having the appearance—except for circumferential measurement—of an ordinary casing, and is designed to form a non-chafing bed for the tube to rest upon.

A recent consignment by the Firestone Tire & Rubber Co. to its branch at Houston, Texas, comprised a total of 4,000 tires, or two entire carloads—said to be one of the largest shipments of its kind ever received in that city.

The fire which recently destroyed the stores of the Day Rubber Co., at 415-417 North Fourth street, St. Louis, Missouri, resulted in a property loss amounting to $265,000.

The Independent Rubber Co., incorporated June 23, 1913, and located at 408 Virginia avenue, Joplin, Missouri, expects in the near future to enlarge its plant so that rubber tires may be added to its present line of production, which consists of inner tubes for automobile tires. The litharge used in the preparation of the rubber entering into these tubes is a local product, and the sale of the tube has thus far been confined chiefly to the local market and to Kansas. The officers of the company are: F. A. Wilber, president; Fred Smith, vice-president; B. H. Wilber, treasurer, and Arthur James, secretary.

On page 312 of the March issue of this publication an item appeared regarding the formation of a company known as the Brooklyn Shield & Rubber Co. to take over the business formerly conducted by H. P. Rindskopf, and mentioning the location of the new concern as 397 Myrtle avenue, Brooklyn. This was an error and should have been 397 Sumner avenue.

A wholesale distributing agency has been opened in Kansas City, Missouri, by the McGraw Tire & Rubber Co., of East Palestine, Ohio, under the name of the Kansas City Tire & Rubber Co. This new branch is located at 1516 Grand avenue, and will conduct a wholesale and jobbing business exclusively, carrying a full line of the company's well-known Congress, Imperial and Pullman tires, for distribution throughout the entire Northwest.

Plans are under way for the erection of an addition to the plant of the Canfield Rubber Co. at Bridgeport, Connecticut. This additional building is to be 150 x 200 feet in area, four stories in height and of brick construction.

H. W. Morgan, 4417 Franklin avenue, Cleveland, Ohio, has invented a material that he calls "Morganite, a new vulcanite." It is made by the partial or entire dissolution of wood, the addition of various compounds and then vulcanization. The inventor says his process is applicable to hard rubber and makes this interesting statement: "By a similar process even hard vulcanized rubber can be dissolved to a plastic state and applied to surfaces of wood or paper and be again vulcanized as a coating, giving the appearance of ordinary hard rubber goods."

The New York Mackintosh Co. expects early in the spring to erect a factory at Mamaroneck, New York, and bids for this work are now being received by the manager, J. Place. The structure under consideration is 52 x 102 feet, two stories high.

Early in March a preliminary certificate of dissolution of the Goodyear Rubber Manufacturing Co., of Naugatuck, was filed in that city. This corporation has existed rather as a matter of form than as being engaged in active operations.

THE IRON KNOWN AS L. H. G. SPECIAL

The L. H. Goodnow Foundry Co., of Fitchburg, Massachusetts, has for several years been manufacturing a special iron which has been extensively used by the United States Government and which lately has come into use in various rubber factories, especially for tire molds, die castings or plates, and for gears. This iron—which is known as the L. H. G. Special—has a tensile strength of from 33,000 to 35,000 pounds per square inch, a density and finish like steel and is said to be free from blow holes. The company is very glad to send manufacturers interested in the subject samples showing the fracture, the perfect thread that the iron takes, as well as its fine finish.

EXTENT AND GROWTH OF THE STAMP TRADE.

A review of the rubber stamp industry shows that there are now in the English speaking countries of the world about 3,000 concerns engaged in the production of rubber stamps and cushion mounts, about 150 of which are new concerns started during the past year. It also indicates constant improvement in the art of stamp rubber vulcanization and an increasing volume of business, sales for 1913 reaching an amount more than 30 per cent. in advance of those of the previous year.

RUBBER REVEALS THE SECRETS OF THE INNER MAN.

To take the measure of man is no new thing, being done with some frequency and with more or less accuracy, but to arrive at a system by which the degree of a man's appetite for food may be correctly measured has hitherto been believed incapable of accomplishment. However, much learning brings about wonderful discoveries, and one of the latest is the discovery by a professor at the University of Chicago that by the aid of a small elongated balloon and a rubber tube it is possible to decide the exact degree of a man's hunger. The balloon, attached to the tube, is first swallowed, then inflated, and the end of the tube attached to sensitized paper. The air escaping from the tube registers on the paper the degree of avidity with which the muscles of the stomach seize upon the supposed food. The market for rubber balloons with tube attachment will no doubt be considerably extended by this latest discovery in usefulness.

HAS ALL THE BOUNCE OF RUBBER.

Ernest Jacoby & Co., of Boston, recently sent to this office a couple of round balls about the size of a baseball having the appearance of rubber and certainly its resiliency, for when dropped on the floor they bounded five or six feet into the air; and yet these balls contain no rubber, but were made of a new material, called "Brown Jaco," intended to be used in the manufacture of rubber goods. The makers state that in addition to its remarkable physical properties it has chemical properties that make it possible to use it where materials of this general description could not be used. It costs about one-fifth as much as crude rubber.

THE SCRAP RUBBER TRADE OF 1913 AND 1914.

Some waste dealers who had studied the question recognized the fact early in 1913 that in view of the larger production of crude rubber the supply would exceed the demand, with the result that scrap rubber would have to follow the general decline. While they accordingly reduced their stocks, their example was not generally followed, so that other dealers who held their scrap during the early decline had at a later date to take lower prices.

According to the opinion of the trade, present conditions differ from all past experience. Unless reclaimers can secure scrap at prices in proportion to the value of crude rubber they cannot operate. Some of the less prominent dealers do not recognize this fact, and therefore are holding their stock in the expectation of a reaction. In this connection the opinion has been expressed that unless some new uses are discovered for the increased supply of rubber the present accumulations of waste will sooner or later have to be sold to make room for the large quantities of tire scrap, which will be offered at lower market rates than are now current.

Instead of holding on to their stocks, they are advised to sell out at today's figures and to buy further scrap at current prices. This turning over would relieve the accumulation which now clogs the trade.

Reports of business since the opening of the year show a more or less improved demand for the products of reclaimers. This fact has brought about an advance in the market for scrap.

In the words of a leading member of the trade speaking of the future, it is to be anticipated that the end of the depression has been reached and that we have begun a year of renewed confidence and expansion in all lines of trade. One of the notable events of 1913 was the formation of the National Association of Waste Material Dealers, which has placed the trade in a position it had not previously occupied.

PLANS FOR ORGANIZATION TO TAKE OVER WALPOLE COMPANY.

A plan for the organization of a new company, under the laws of Massachusetts, to take over the business of the Walpole Tire & Rubber Co. has been submitted in circular form to the stockholders of that company by Curtis G. Metzler, the company attorney. The plan provides that the new company shall have an authorized capitalization of $3,500,000—of which $2,000,000 is to be 7 per cent. preferred and the balance common stock of a par value of $100—the initial issue to consist of $1,813,000 preferred and $1,500,000 common (an amount equal to the outstanding stock of the present company). All assets of the old company are to be purchased by the Reorganization Committee and present stockholders are to be given an opportunity to subscribe for new stock to the amount of their holdings, an allowance of $75 to be made for each share of preferred and $87.50 for each share of common; the balance—$25 and $12.50, respectively—to be paid in cash. Should all stockholders take advantage of this opportunity it would result in payments to the amount of $640,750, which, applied to the present liabilities of approximately $1,100,000, would reduce these to about $459,250. The auditors employed by the receivers estimate the net earnings for 1914—exclusive of the earnings of the sub-companies—at $300,000 to $350,000, and it is proposed from these earnings to pay off the indebtedness as well as preferred dividends.

The plan has met with some opposition, circulars bearing the signatures of Clare H. Draper, Edward L. Belding and John C. Heyer, Protective Committee; Alfred W. Anthony, J. Eugene Osgood and Michael J. Houlihan, Stockholders' Committee, having been sent out which contain the following paragraph:

"We do not believe the proposed plan is practicable, and we deem it our duty to notify all the stockholders that it does not command our approval or support. We believe in reorganization of the company if the creditors are willing to assist. We may recommend the stockholders to put in new money. We propose to send the stockholders, within a short time, further suggestions as to a plan of reorganization which we deem feasible."

Mr. Metzler, in referring to the opposition, makes this statement:

"About one-third of all stockholders have already sent signed agreements to me and have pledged their hearty co-operation. We shall go on with our plan notwithstanding the letter, as it is the desire of many stockholders to have it go through."

A dividend of 4 per cent. to creditors whose claims have already been allowed (amounting to about $700,000) has been authorized by the court, $60,000 to be set aside for this purpose and for the payment of a dividend on claims yet to be allowed.

RETAIL PURCHASES OF RUBBER GOODS NOT EXCHANGEABLE.

In many departments of retail stores notices are displayed which state that purchases will not be received for either credit or exchange, and a certain druggist, of Springfield, Ohio, has included in his list of non-returnable goods all hot water bottles, syringes and surgical rubber goods. Customers for these articles are requested to make careful selections, and each purchase is accompanied by a card warning against the loan of the article and calling attention to the fact that while any goods defective in material or workmanship will be replaced, interest in protecting the customer against contagious diseases—the germs of which may very readily be carried by hot water bottles, etc.—is the reason for refusal to take back such articles.

COMPARISON OF CRUDE AND WASTE RUBBER IMPORTS FOR 1911, 1912 AND 1913.

THE most recent statistical record of imports deals with the calendar years 1911, 1912 and 1913, and is reproduced below. It shows the quantities of crude rubber imported for the three years as 82,851,725, 118,058,284 and 115,880,641 pounds. The effect of the recent fall is illustrated by the fact that while in 1913 the quantity fell off about 2 per cent., the value receded about 23 per cent.

In guayule both quantity and amount have fallen off about two-thirds as compared with 1911, while waste has maintained in 1913 its gain of nearly 100 per cent. in both quantity and value made in 1912. The grand totals of unmanufactured rubber for the three years are 168,878,163, 217,076,312 and 196,291,283 pounds.

UNMANUFACTURED RUBBER IMPORTS FOR LAST THREE CALENDAR YEARS.

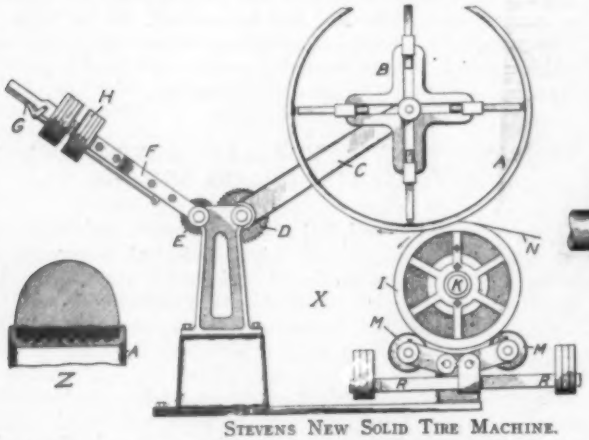
	1911		1912		1913	
India rubber, etc., and substitutes for, unmanufactured:	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Balata	1,705,158	$1,170,074	1,114,513	$667,767	1,508,946	$792,543
Guayule gum	16,659,948	8,138,801	12,834,214	5,624,882	4,870,203	2,129,681
Gutta-jelutong	46,594,697	2,292,604	48,053,634	2,214,643	36,420,921	1,765,816
Gutta-percha	1,886,214	398,779	661,571	157,341	872,595	199,808
India rubber	82,851,725	74,410,550	118,058,284	99,567,071	115,880,641	76,820,739
India rubber scrap or refuse, fit only for remanufacture	19,180,521	1,530,530	36,354,096	2,973,311	36,737,977	3,193,003
Total unmanufactured	168,878,163	$87,941,338	217,076,312	$111,205,015	196,291,283	$84,901,590

New Machines and Appliances.

THE STEVENS SOLID TIRE MACHINE.

AMONG the newer machines relating to the construction of tires is one designed by William C. Stevens, of Akron, Ohio. This machine, which is illustrated in the accompanying drawings, is designed for building up the base portion of solid rubber tires on metallic rims, preparatory to vulcanizing upon the solid base the softer tread portion. In building up solid tires it is usual to form the base of hard rubber, which is grooved or dovetailed into the metal rim, and then to vulcanize the tread of soft rubber onto the hard rubber base. It is the object of this machine to provide a means of forcing the hard rubber into the metal grooves and to apply the successive layers in such a manner that the top layer will present a comparatively smooth surface to which the tread may be more easily vulcanized.

Referring to the drawings, *X* shows a side view of the complete machine, *Y* shows a section through the special roller for applying the hard rubber base, and *Z* is a section through the rim and completed tire. The ordinary metal rim *A* is supported upon an adjustable spider *B* which is pivoted on the arm *C*. The opposite end of this arm bears a gear *D* which engages another gear *E* fixed to the end of the arm *F*. This arm may be raised or lowered with respect to the gear *E* by adjusting a ratchet which engages the teeth of the gear and which is operated by the lever *G*. The outer end of the arm *F* bears a weight *H*, which, through the spur gears, causes the rim *A* to bear down with considerable pressure upon the roller *I*. The construction of this roller is the principal feature of the machine, and it may be better understood by referring to the sectional view *Y*. The roller is made up of a number of plates *J* fastened to the shaft *K*. Between these plates are a number of annular disks *L*. These disks are slightly larger in diameter than the plates and

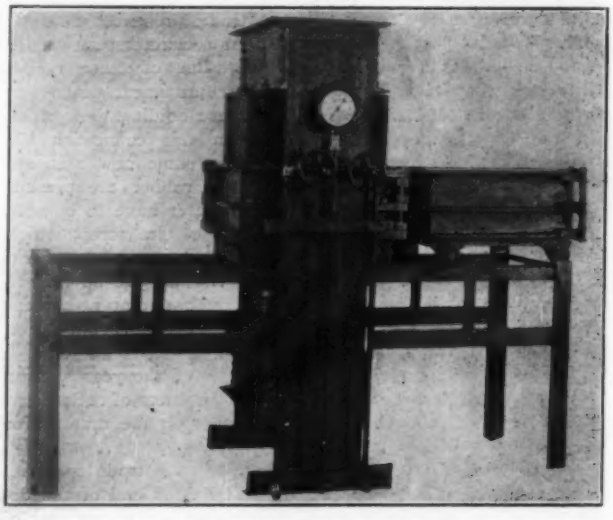


Stevens New Solid Tire Machine.

their central openings are slightly larger than the hubs of the plates *J*. As the drum revolves upon the rollers *M* the disks *L* are pushed up so that the top of the drum assumes a corrugated appearance. The strip of rubber *N*, which is to form the base of the tire, is fed between the rim *A* and the drum *I*, and the disks *L* force the rubber into the grooves in the rim. As each succeeding layer of rubber is laid upon the rim, the material becomes less susceptible to the pressure of the disks, and when the last layer is reached the rubber base has almost a plain surface. In order to keep the disks pressed up against the rubber as the latter is being applied, the pressure rolls *M* are forced up against the drum by means of a pair of heavily weighted levers *R*. The cross-section of the completed tire indicates the manner in which the rubber is forced into the grooved rim and shows the gradual elimination of the deep ridges as each layer of rubber is applied.

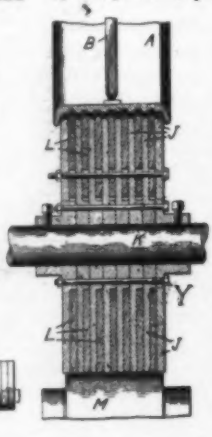
HYDRAULIC PRESS FOR RUBBER SCRAP.

The hydraulic press illustrated herewith, and which was only recently brought out in this form, is being used by a number of manufacturers for pressing crude scrap rubber into slabs for



Machine for Slabbing Scrap Rubber.

convenience in handling and storing. This press is operated by a hydraulic plunger which is actuated either by an accumulator or from a single pump installation. The apparatus is of the upward pressure type, the plunger having a working pressure of 1,000 pounds, with a travel of 13 inches. A track running through the press between the frame members carries two steel mold boxes which receive the crude rubber and carry it into the press. One box is always in position for unloading and refilling while the other is under pressure. This saves time and labor and makes the operation a continuous one. One side and end of each mold box are provided with hinges which permit the boxes to be opened for removal of the pressed rubber. The pressure head is machined to fit the boxes, which are 22 inches wide, 26 inches long and 13 inches deep. When pressure is applied, the box with the crude rubber is forced upward and over the pressure head, and the rubber is pressed into a slab in the bottom of the box. The machine is fitted with the usual hydraulic gages and valves for controlling and registering the pressure. The apparatus is constructed of steel throughout, which adapts it for long and hard service. [The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio.]

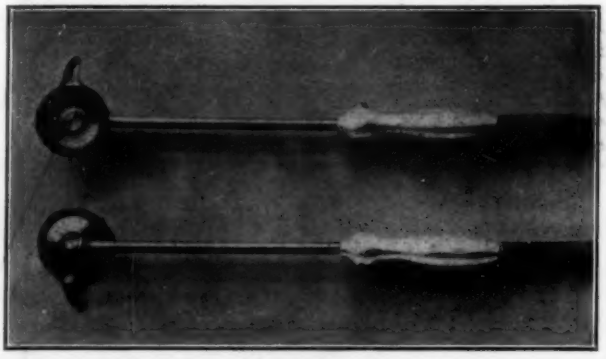


RUBBER ROLLS FOR TANNING.

An improvement has been made in the rubber rolls used for tanning by the introduction of one or more layers of tough rubber over the layers of softer resilient rubber. This tough rubber resists the influence of grease and oil, without affecting the resiliency of the rubber covering of the rolls. [Felten & Guilleaume, Mülheim-on-Rhine.]

A SUCTION ATTACHMENT FOR PUNCH PRESSES.

An interesting device shown at the recent Safety and Sanitation exhibition was a suction attachment for punch presses used for picking up sheet metal to be fed to press, this method naturally being safer than the former practice of hand feeding.



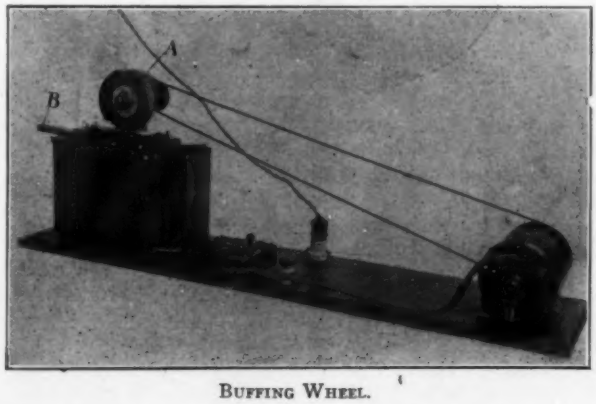
DEVICE FOR PICKING UP SHEET METAL.

The actual "picking" is effected through means of a rubber disc deriving its suction from a vacuum pump to which it is attached. [Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania.]

BUFFING WHEEL FOR RUBBER.

In testing cotton rubber-lined fire hose, the backing, which is used to cement the lining to the fabric, if not removed, affects to a greater or less extent the values obtained for tensile strength and recovery. The more usual method is to remove the backing by means of an emery wheel, and the operation as commonly performed requires considerable care and skill to prevent injury to the rubber.

The buffing wheel shown in the accompanying illustration has been especially designed at the National Bureau of Standards



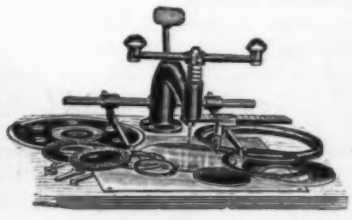
BUFFING WHEEL.

for the purpose of buffing rubber and is giving excellent results.

The wheel is operated by a ⅛ horsepower motor. The rubber to be buffed is clamped, as shown, to a carriage which is moved back and forth under the 5 inch x 1 inch emery wheel (No. 60) running at about 3,000 revolutions per minute. The central portion of the carriage just under the rubber is slightly raised, by which means it has been found that the operation is more easily performed and with less danger of injury to the rubber. The thumb screw marked "A" serves to lower the wheel by very small amounts as the buffing proceeds. The shields marked "B" are for the purpose of keeping the fine particles of rubber off of the guide. The starting box, tho not necessary, is desirable in bringing the wheel gradually up to full speed.

A MACHINE FOR CUTTING RUBBER GASKETS.

If a man prefers, he can take a pair of compasses—or the bottom of a tin can, for that matter—draw a circle on a sheet of rubber and cut a gasket out with a pair of shears; but he can do it much more expeditiously and accurately by using the Springfield circle cutter illustrated here. This is a simple machine, weighing only about 12 pounds, and can be used on any flat table. The double clamp holds the sheet of rubber, or whatever the material may be, firmly in its place, and a revolving arm cuts out the circle of the desired size. This arm has a graduated scale, so that the radius of the circle may be accurately gauged. This radius may be anything from ⅛ of an inch to 14 inches. There is a tool carrier, arranged to hold various different tools. The machine is quite inexpensive. [The Shawver Co., Springfield, Ohio.]



WRAPS TIRES IN HALF A MINUTE.

The constant progress being made in the rubber industry is indicated by the continual introduction of new machinery. One manufacturer has placed on the market a new machine which wraps the paper tape protecting cover on a tire in 30 seconds. This machine is driven by belt from an electric motor mounted on the back of the cast iron stand. The roll of paper tape is carried around the tire by an annular steel ring while the tire is revolved at right angles to the ring. Both the tire and the ring are actuated by friction rollers which provide sufficient pressure to give a positive drive without slipping. The machine is controlled by a foot lever, which leaves the operator's hands free to open the ring and remove the tire the instant the power is shut off. Very little floor space is required for the stand and only a small-powered motor is needed to operate the winding mechanism. [Chas. E. Miller, Anderson, Indiana.]

A NEW HILL-STAGE VULCANIZER.

For the public garage operator this new vulcanizer is particularly adapted, since it has a capacity of five casings, five inner tubes, one motorcycle tire and two bicycle tires at a single heating. It will take tires up to 5 inches in size, or the tubes of any size may be accommodated. This is a steam vulcanizer, being equipped with a jacketed boiler of large capacity and with either a gas or gasoline burner. The outfit weighs, complete, ready for shipment, 675 pounds. [The Hill-Stage Co., Anderson, Indiana.]

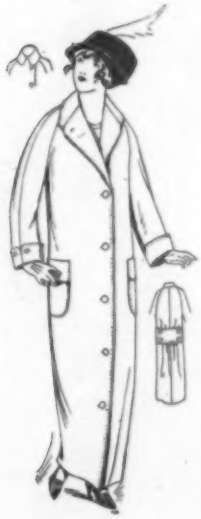
New Rubber Goods in the Market.

A NEW SHOE FOR BATHERS.

THOSE people who are wont to complain that rubber footwear is just the same now as in the days of our fathers will be relieved to know that a brand new shoe is now being marketed and will be ready for the retail trade early next summer. It is a Hub-Mark bathing shoe. The accompanying cut shows that it has no laces but is finished with an elastic stockinette top that makes it fit snugly over the foot. It is very light in weight and yet affords ample protection against pebbles, shells and other disagreeable objects that make barefoot bathing sometimes anything but enjoyable. The shoe is packed in cartons and is made in either white or black and in sizes from children's 4's to men's 11's. [Boston Rubber Shoe Co., Boston.]

GUARANTEED RAINCOATS.

The absence of a manufacturer's guarantee does not indicate that the article so offered is lacking in genuine merit, this feature being frequently so apparent as to call for no special endorsement. But the fact remains that in the minds of many purchasers a guarantee of lasting quality adds greatly to the desirability of the article; and that this feeling of security may be enjoyed by purchasers of raincoats a line of these garments, in various styles, has been produced under a guarantee by the manufacturer that the rubber coating will not crack, peel or soften for three years. The cut herewith shows one of the latest styles in these raincoats, a Balmacaan model, with or without the belt, made of single texture Scotch mixture, in tans and grays, with all seams cemented and stitched. [Sanborn Manufacturing Co., 151-155 West Twenty-fifth streeet, New York.]



NATURE'S ASSISTANT.

An invention, the offices of which will no doubt be suggested by reference to the accompanying cut, has recently been placed on the market. By an ingenious arrangement, a hard rubber tube—various sizes of which are provided—is attached to an ordinary water bag, the flow of the liquid which it contains being regulated by means of an automatic ball valve within the tube. [Williams Douche and Water Bag Co., Vinita, Oklahoma.]

WATERPROOF COVERS FOR AUTO SEATS.

Most automobile owners find it to their advantage to protect the leather upholstery of their cars by the use of waterproof covers, and to meet the ever-increasing demand an especially desirable rubber interlined double waterproof cloth cover is now being offered the trade, at a very moderate price, by the Perkins-Campbell Co., of Cincinnati, Ohio.

PROTECTION AGAINST ACCIDENTAL POISONING.

The many fatalities resulting from mistaking bottles containing poison for those which contain medicines of curative properties have led to numerous suggestions whereby a recurrence of such accidents may be avoided. One of these, which would seem to be well adapted to serve this purpose, is here shown. It consists of a pronged rubber band, which goes around the neck of the bottle, the letters composing the word poison alternating with the prongs. A recent enactment requires that such a device be adapted to the neck of every bottle containing poison dispensed in the city of Atlanta, Georgia.

A LATE DESIGN IN GOLF SHOES.

The accompanying cut, which shows a tan Russia calf oxford with wing tip and decorative perforations, illustrates a late design in golf shoes. The side view shows the steel studs which especially adapt this shoe for use on the golf links, and the flat sole view shows an alternative arrangement of rubber plugs which make it equally suitable for use in the club house or where the unprotected steel projections would injure the floors.

Courtesy of "Shoe & Leather Reporter," Boston.

Golf Shoe with Rubber Plugs.

THE "PULLASTIC" BANDEAU.

Bandeaux and hat linings are now produced which may be adjusted to fit any head and which enable the wearer to dispense with hatpins. They are said to give perfect poise to the hat, without disarranging the hair, and to be extremely comfortable. The adjustment is effected by the use of an elastic band, which acts as a draw string in a bandeau or lining of soft material, slipping down over the head and capable of being instantly shortened or released to the desired circumference. [Pullastic, 66, Ludgate Hill, London, E. C., England.]

LEATHER-FACED INSULATING GLOVES.

Plain rubber insulating gloves have long been in use by those engaged in electrical work, but the leather-faced rubber glove is a comparatively new idea. The leather facing adds to the life of the article, while in no way detracting from its effectiveness. Gloves embodying this idea are included in the output of the St. Helens Cable & Rubber Co., Limited, Warrington, England.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

RECLAIMED RUBBER.

UNDER the title of "Reclaimed Rubber vs. Plantation Rubber," Mr. Maclaren, who is a director of several rubber plantation companies, contributed a lengthy and interesting article to the "India Rubber Journal," of February 7. No doubt many of my readers have seen it, and I shall not attempt to refer to it here in detail. I should, however, like to say that opinions expressed in my presence are by no means unanimous as to his figures and general deductions. His estimate that the amount of rubber in the reclaimed manufacture is equivalent to about 56,000 tons is considered by some as too low, 80,000 tons being suggested as nearer the mark.

Reclaimers do not regard the future with much apprehension. Old rubber, they contend, will always be collected as old iron always has been, whatever the market price may be. Again, the greater the amount of new rubber used, the greater will be the tonnage of scrap collected; and as regards the selling price of reclaimed, it is pointed out that prices will conform to the market price of raw rubber and scrap. Thus motor tires, which not long ago cost £40 per ton, are now being bought at £18 to £20 per ton, and the selling price of reclaimed has been reduced accordingly. Probably because the total amount produced is small, Mr. Maclaren does not refer to certain brands of reclaimed rubber which correspond very closely to new raw rubber, having been derived from unvulcanized scrap, as also from scrap containing only one or two per cent. of mineral and slightly vulcanized.

If what I hear is correct a prominent reclaiming firm in England is contemplating the erection of additional works at another place in the country, which hardly looks as if it expected an early collapse of its business. Other firms report a steady business, though they are not as busy as they have been. Although motor tires have fallen in price, other classes of scrap show practically no reduction, this applying especially to reds, grays and cab tires, these last still coming on the market in spite of the growth of the taxicab in all large towns.

ANALYSIS OF RUBBER INSULATION.

The preliminary report of the joint rubber insulation committee, appointed by American manufacturers and users, is of special interest to rubber analysts generally, and I may perhaps be afforded space to make one or two observations thereon. It must not be overlooked that the carefully defined details of analytical work have for their main object the determination as to whether or no the sample under analysis conforms to a specified quality. There are certain limits given for the acetone, chloroform and potash extractions, etc., and if these limits are exceeded, the sample is presumably condemned. This sort of work is always simpler than stating the actual composition of an unknown sample. At the same time those who are frequently confronted with the latter work, or rather problem, will no doubt find the new analytical scheme a decided aid in their labors. Perhaps in the case of those firms to which these specifications apply the time occupied in analysis is of no great moment, but for factory use, or for the ordinary consultant, a string of processes, each taking up many hours, is rather a serious matter. A rubber analysis which occupies three days is apt to defeat its main objective except in legal cases, or where large and important contracts are concerned.

It is interesting to note that the old method of estimating the rubber by difference is adhered to, the various direct methods being evidently considered insufficiently reliable. The difficult problem of getting at the amount of asphaltic bodies has been tackled to a limited extent. Extraction with chloroform, after the acetone extraction, is the procedure adopted, though this is only meant to show the absence of asphalt, and does not claim to give its exact quantity if present. A small amount of extract is allowed as the chloroform is known to dissolve some rubber. The inaccuracy of all these extraction methods for asphalt pitch or mineral rubber lies in the fact that a considerable and variable proportion is always dissolved out by the acetone, and unless allowance is made the figure obtained by the asphalt solvent used later on is always too low. For the determination of mineral matter ashing the sample is not recommended, solution of the rubber and filtration off of the sediment being the specified procedure. No doubt where time is no object this is the better method, and in certain cases the only method which can be adopted with any pretense to accuracy. The more rapid ashing method, however, can, in capable hands at any rate, for many rubber compounds be made to give sufficiently accurate results, and it will still continue, I imagine, in general use. By the qualifying clause, "capable hands," I mean one who has a sufficient knowledge of rubber manufacture to enable him to apply certain necessary corrections to the figures obtained.

Another, and a long standing problem, of rubber analysis is left unsolved; that is the determination of lampblack. In the present scheme carbon is to be tested for by the presence of a black color on treatment with nitric acid, but the test is not put forward as a quantitative one. Special attention is drawn to the preparation of the sample for analysis. This is a more important matter than is generally supposed, and the recommendation to pass all the material through a definite mesh sieve before analysis is a procedure which should be generally followed.

FINE HARD FROM EASTERN PLANTATIONS.

More trouble seems in store for Brazilian finances—that is, supposing that the Wickham Hard Cure Process comes up to the confident anticipations of the promoters of the company which is now engaged in exploiting it. I have not been fortunate enough yet to obtain a sample of the smoked rubber, but from what I have heard there is not exactly a unanimous opinion among manufacturers as to the equality of this rubber with Brazilian Hard Cure. Moreover the suggestion has been made in certain quarters that Mr. Wickham, who is universally respected, has lent his name and influence rather too readily to the city element. Presumably the patent is a sound one, though, as the treatment of rubber latex with wood smoke is of course well known, the novelty must lie in the particular mechanical contrivance for carrying it into effect.

Briefly described the Wickham machine consists of a vertical disc with a flange three or four inches wide, the liquid latex being allowed to drip on the interior of the flange at a uniform rate. The disc is revolved at about 90 revolutions per minute, the centrifugal action causing the latex to spread, and carrying it in a thin film round the interior of the flange, to where a jet of hot smoke is allowed to impinge upon it. The resulting effect is a continuous process of curing in the Amazonian fashion, superimposed thin films of rubber being formed. When a thick enough film has been formed it is removed and pressed for transport. *Prima facie*, this process, which is quite distinct from the Byrne patent process of smoking the already coagulated latex, should give rubber equal to the Brazilian—always supposing that the actual composition of the latex from the youthful eastern trees is identical with that yielded by trees of far greater age. Personally I am not at all satisfied that the latices are similar, and if they are not I imagine that it is

asking far too much of the creosote in the smoke to rectify the deficiency in the plantation output. As samples of the Wickham rubber are stated to have been sold at 8d. per pound higher than first grade crêpe, any misgivings I may have may easily be proved to have no foundation, and I shall await developments with interest, the matter being of course of the first importance to the planting industry.

RUBBER MANUFACTURING DISASTERS.

After Hopkinson & Co.—Gorton; after Gorton—the Sirdar Rubber Co., Limited. This is rather a tale of woe to have to record within such a brief period, and it might be usefully taken to heart by those plantation shareholders who a few months back were writing to the press about the huge profits being made by rubber manufacturers generally. All the above and other firms to a less disastrous extent were severely hit by the rubber boom of 1910, though no doubt other adverse factors have been at work. Much sympathy will be felt for Mr. J. M. MacLulich, the moving spirit of the Sirdar company, a concern which he formed in 1906 at Limpley Stoke, near Bath, to make the Sirdar tires, which had since 1898 been made by other works for the Sirdar company. The works at Limpley Stoke, at one time occupied by Messrs. Wallington, Weston & Co., were soon found to be too small for the Sirdar Rubber Co., and a move was made to Bradford-on-Avon, not many miles away, where the Spencer Moulton Rubber Works had long been established. The latter firm, though still specializing in railway buffers, has recently entered the tire business, in which it has made great progress. The liabilities of the Sirdar company are stated to be £29,300, the loss for 1913 being £3,300.

CEYLON AT THE LONDON RUBBER EXHIBITION.

According to Ceylon advices, that island will be worthily represented at the London Rubber Exhibition. The Ceylon Court will be situated next the entrance and opposite the Brazilian stand, occupying a space of 67 x 40 feet. Efforts are being made in Ceylon to encourage planters to come forward with exhibits, not only of rubber but also of fibers and other articles within the scope of the exhibition.

ENGLISH EXPORTS OF WATERPROOFED APPAREL.

According to statistical returns, the total exports of English waterproofed apparel have increased from the equivalent of $3,045,000 in 1911 to $5,108,778 in 1913. In the last named year Canada was the largest single customer, taking $1,410,715 or about 28 per cent. France took 2 per cent.; British South Africa, 3½ per cent.; British East Indies, 2½ per cent.; Australia, 4 per cent., and New Zealand, 3¼ per cent. The remaining 56¾ per cent. was distributed among other countries.

CAPITAL OF ENGLISH PLANTATION COMPANIES.

According to recent statistics the total capital invested in English plantation companies equals $314,791,250. The dates of establishment were as follows:

1908	$10,052,500
1909	60,040,000
1910	194,207,500
1911	33,095,000
1912	10,682,500
1913	6,713,750
Total	$314,791,250

In 1913 the new capital as shown belonged to 19 companies, four of the most important of which represented about one-half of the total. Their geographical distribution was as follows:

Malayan Peninsula, 9; Sumatra, 3; Ceylon, 2; British North Borneo, 1; Africa, 3; India, 1.

HENLEY'S PAY GOOD DIVIDEND.

The report of W. T. Henley's Telegraph Works Co., Limited, London, for 1913 shows that the 15 per cent. dividend, which has been paid since 1909, has now been supplemented by a bonus representing 5 per cent. The increased profit thus distributed has been due to the manufacture of golf balls, particularly of the company's specialty, the "Why Not?" ball. During the years 1909 to 1913, in addition to the above liberal dividend, an amount equaling $250,000 has been added to the reserve fund. A sum of nearly $300,000 has been now carried forward to new account.

PROPOSED LONDON RUBBER WAREHOUSE.

The first draft of a scheme for a limited company has been issued in London for the erection of a modern rubber warehouse, and for carrying on rubber warehouse business. An option has been obtained on a plot of 5½ acres, near the Victoria and Albert docks, at a price of $175,000, while a suitable warehouse could be built and equipped for $287,500. Such a warehouse could accommodate 20,000 tons a year, leaving a surplus space of 50,000 square feet for renting or for additional warehousing.

NEW RUBBER WASHING WORKS.

Economic Rubber Machines, Limited, is the style of a company about to undertake the washing, crêping and drying of rubber on an important scale at a new plant, Copperfield road, Stepney, London, E.

STOCKS OF LOW GRADE RUBBER.

An English statistical return shows that the combined stocks of all kinds of rubber at London and Liverpool have risen from 4,538 tons at the end of January, 1913, to 6,196 tons at the corresponding period of 1914. This increase of 1,658 tons is considered relatively small in view of the rapid growth of Eastern supplies. Moreover, the increase includes some 500 tons of inferior grade rubber of doubtful sale, as shown below:

	January 31, 1913. *Tons.*	January 31, 1914. *Tons.*
Borneo	138	214
Mozambique	168	238
African	332	390
Peruvian	200	270
Maniçoba, Ceara, etc.	230	463
Total	1,068	1,575

EDINBURGH HOSPITAL GETS GIFT OF RUBBER FLOORING.

At a recent meeting of the managers of the Edinburgh Royal Infirmary an offer was received from the Rubber Growers' Association to supply, free of charge, 600 square yards of rubber flooring to the institution. The flooring would be manufactured and laid down by a local firm.

SCOTTISH MOTOR EXHIBITION.

This exhibition, which was recently held at Edinburgh, had about ninety exhibitors, of whom about fifteen were makers of tires. Special notice was attracted by the exhibit of the North British Rubber Co., Ltd., their stand having been specially designed for the occasion.

CLYDE RUBBER WORKS REMOVED TO RENFREW.

The Clyde Rubber Works Co., Ltd., announces its removal from Glasgow to Renfrew, a short distance from the first named city. With a view to meeting requirements, the works have been specially erected and are equipped with an up-to-date plant driven by electricity. These increased facilities place the company in a position to promptly meet the increased demands for its products.

RUBBER EAR PROTECTOR.

An invention patented in Germany consists of a hollow body of rubber, extensible by internal mechanical pressure so that the channel of the ear can be quickly closed and re-opened. This is doubtless intended to protect the ear from the concussion of explosions.

Some Rubber Interests in Europe.

BRAZILIAN COMMERCIAL MUSEUM IN PARIS.

THE new Brazilian Commercial Museum, lately opened in Paris, is situated in the center of the city, at 101 rue Saint-Honoré, within a stone's throw of the Louvre and the Tuileries gardens. It is located on the premises of the Brazilian Information Bureau. In the exhibits the various sections of the natural wealth of Brazil are included—such as coffee, rubber, maté, sugar, cocoa and cotton.

Rubber, as occupying the second place among Brazilian exports, is fully represented by samples of the product in the form of biscuits and balls. The exhibit comprises the principal varieties of rubber known in Brazil, as well as slips for planting purposes. A collection of photographs illustrates all the steps in gathering rubber.

Dr. Delfim Carlos B. da Silva, aided by an efficient staff, has the direction of the new museum. A circular shows the rise of Brazilian rubber exports from 31,717 tons in 1903 to 42,286 tons in 1912.

NEW FRENCH FROTH RUBBER CO.

A company has been formed in Paris to work the Pfleumer patent for the manufacture of "Caoutchouc Mousse" (froth rubber), from rubber, gutta percha and balata, vulcanized by heat. The capital equals $1,200,000.

FRENCH COLONIAL EXHIBITION IN 1916.

It is proposed to hold an exhibition at Marseilles in 1916 representing French colonial interests. The prominent officials are: M. Loisy, director of the cabinet of the French Colonial Ministry and M. Jacques Marlio, his assistant.

BORDEAUX RUBBER MARKET IN 1913.

Bordeaux rubber imports fell from 1,365 tons in 1912 to 914 tons in 1913, the reduction being caused by the fall in prices which led to many importers ceasing operations at the sources of supply. It will require an improved range of values in Europe to revive trade with French Africa. The rubber passing through the Bordeaux market in 1913 did not display any improvement in quality, there being, moreover, a lack of uniformity. The imports of balata, however, showed an increase from 8 tons to 75 tons, prices having been relatively high and steady.

HOT AIR VULCANIZER INVENTED BY MR. BOBET.

In the February issue of THE INDIA RUBBER WORLD there was an illustrated description of a new hot air vulcanizer being used quite extensively in repair shops in France. This apparatus is the invention of Mr. René Bobet, a frequent contributor to these columns.

LARGE PROFITS OF BERGOUGNAN COMPANY.

The net profits made by the Bergougnan concern, of Clermont-Ferrand (France), for 1913 equal over $1,000,000. Of this amount $100,000 has gone to a special reserve fund, to provide against fluctuations in the price of rubber.

BOTANICAL SERVICE IN TUNIS.

A botanical service has been officially established in Tunis to be carried on under the direction and control of the French Director General of Agriculture. Its objects will include the study and propagation of plants and trees of interest to the inhabitants of Tunis.

PIRELLI & CO.'S NEW SPANISH FACTORIES.

Messrs. Pirelli & Co., of Milan, have acquired a large site adjoining their Spanish branch electric cable works at Villanueva y Giltru. Two large buildings are being erected, with a total floor space of about 60,000 square feet. One of these is intended for the production of rubber goods, and the other for making telephone cables.

NEW BOHEMIAN RUBBER GOODS FACTORY.

Under the style of Maximilian Rost, a limited company has been registered at Bodenbach, Bohemia, for the production and sale of elastic rubber goods, braces and bandages.

MICHELINS FORM BELGIAN COMPANY.

A company styled "La Société Belge du Pneumatique Michelin" has been formed, with a capital equaling $60,000, at St.-Josse-ten-Noode, near Brussels.

INCREASED DANISH IMPORTS OF TIRES.

The total quantities of pneumatic tires, covers and tubes imported by Denmark were: 1910, 365 tons; 1911, 404 tons; 1912, 461 tons.

NEW HUNGARIAN AIRSHIP FACTORY.

The Danubius factory and the Manfred Weiss Co., both of Budapest, have combined in erecting a new airship plant. Orders for 18 airships have been received from the Austrian government.

GOOD DIVIDEND OF AUSTRIAN RUBBER FACTORY.

At the recent general meeting at Vienna of the Ungarische Gummifabrik (Hungarian Rubber Factory) a dividend was declared of 16½ per cent., being at the same rate as in the previous year.

METZELER & CO. OPEN VIENNA BRANCH.

An Austrian company has been registered for the manufacture and sale of rubber goods by Metzeler & Co., Munich, in the name of their Vienna branch. The capital equals $700,000.

MR. HARNESS JOINS PROWODNIK FORCES.

Albert Harness, formerly Manchester district manager for the Continental Tire & Rubber Co., is reported to have severed his connection with that company, to take a position with the Russian firm of Prowodniks, of Riga, being appointed managing director of the Indian Columb Tire Co., Calcutta.

EUROPEAN STATISTICS OF CRUDE RUBBER.

ENGLAND.—Imports for 1913 amounted to 55,270 tons, and deliveries to 52,854 tons. Stock on December 31, 1913, was 5,985 tons.

For the month of January, 1914, imports into London of plantation rubber were 3,911 tons, and deliveries 3,384 tons; demand thus evidently keeping pace with supply. The respective quantities for January, 1913, were 1,337 and 1,280 tons, the plantation rubber business having thus apparently grown threefold during the year.

During January, 1914, Liverpool imported 1,304 tons of rubber, and delivered 1,644 tons, in comparison with 1,578 and 1,793 tons in January, 1913.

FRANCE.—Imports for 11 months ending November were: 1912, 20,905 tons; 1913, 19,338 tons. Exports for that period were respectively, 14,966 and 13,999 tons.

GERMANY.—For the twelve months of 1913 imports represented 20,497 tons, and exports 3,972 tons, against 20,586 and 4,943 in 1912.

Out of a total of 469 splash-guards recently submitted, the municipality of Paris has not been able to select any style which is fully effective, altho several were designated as promising, fairly useful, durable and cheap, and the prefect of police has been called upon to make the use of the splash-guard obligatory.

GERMAN VIEW OF THE RUBBER SITUATION.

In their review of 1913 Messrs. Walther & Löhmann, of Hamburg, remark that when the Brazilians have learnt that even without the most expensive silk goods, the best umbrellas and the finest gramophones, life is still bearable, they will become accustomed to the lower level of prices. In most countries of production the natives will gradually become accustomed to the prices obtainable and production will be resumed when they see they cannot get more for their rubber. Only those districts will definitely abandon rubber gathering where new forms of commercial activity have been discovered. In certain regions there is, moreover, the possibility of an increased production.

The opinion is expressed that as the fall in price has resulted from the production of the East Asiatic plantations, the reaction has to be expected from that quarter. Many of the costs of production as estimated are really applicable to only a few plantations. With respect to estimates of future production, it is remarked that caution should be exercised in considering the reports of the companies started under abnormal circumstances in 1910, and which in many cases are not likely to prove successful. Some estimates even show a reversal of the current in 1918.

The following estimate is presented of the world's production and consumption:

	Production	Consumption
1908-09 .....*tons*	70,587	71,989
1909-10	76,553	76,026
1910-11	79,305	74,082
1911-12	93,669	99,564
1912-13	126,302	121,280

GERMAN CRUDE RUBBER STATISTICS.

German crude rubber imports receded from about 20,580 tons in 1912 to 20,490 in 1913. This slight reduction in quantity was coupled with a fall in value from the equivalent of $40,500,000 to $23,250,000, or about 40 per cent. German manufacturers have largely given away these advantages in price, in the form of reduced quotations for their products. Makers and dealers both prefer a medium range of values to specially low prices without permanence.

GERMAN MOTOR VEHICLE EXPORTS.

Statistics indicate the German exports of automobiles for 1913 as equaling $17,750,000 against $16,250,000 in 1912. Motor trucks showed a better percentage of increase, with $3,250,000 for 1913 in contrast to $1,875,000 in 1912. Motor cycles represented in 1913 $625,000, about the same as in 1912.

Exports of dirigible air craft in 1913 equaled $334,250 against $229,500 for 1912.

German manufacturers exported tubes, tires and treads to the extent of $11,250,000 in 1913, while other motor vehicle accessories represented $12,000,000 to $15,000,000.

REPORTED NEW EBONITE CONCERN.

The proposed establishment of an important concern for the manufacture of ebonite by a patented process is reported from Wörringen, near Cologne. It is said that 1,500 hands will be employed.

THE GERMAN AUTOMOBILE INDUSTRY IN 1913.

The exports of motor cars from Germany increased in value from $17,500,000 in 1912 to $23,750,000 in 1913. As this increase took place at a time when various countries were making extensive military preparations—in case of possible war—the growth of this export business is attributed by some to the more extensive adoption of motor vehicles for army purposes.

CONTINENTAL CAOUTCHOUC AND GUTTA PERCHA.

The Continental Caoutchouc & Gutta Percha Co., of Hanover, Germany, has declared a yearly dividend of 50 per cent. on its stock, including the $750,000 new stock issued about six months ago. This company has recently commenced the erection of a new administrative building at Hanover. It will have 4 stories and will cover an area of about 35,000 square feet. Professor Peter Behrens is the architect.

German reports state that the balloon "Duisburg," in which the aviator Kaulen lately accomplished a record flight from Bitterfeld to Perm (Russia), was covered with "Continental" balloon material made by this concern.

DUNLOP CO. EXTENDING IN GERMANY.

The steadily increasing favor of the Dunlop tire in Germany has necessitated the enlargement of the plant at Hanau-on-Main. It is stated that the surface to be covered by the new buildings equals about 65,000 square feet, which area constitutes an important addition to the present factory.

GERMAN COMMERCIAL STATISTICS.

Statistics of German commerce for the year 1913 show that exports of old rubber shoes through the port of Hamburg fell off to the extent of about $50,000. Imports of American cotton showed a decrease of about 50,000 tons, and American rubber shoe imports dropped from 192.6 tons in 1912 to 5.2 tons in 1913. American rubber shoes entering Germany pay the general duty of 100 marks ($23.80) per 220 pounds, while competing lines are charged the conventional rate of 80 marks ($19.04) per 220 lbs.

Exports from this consular district to the United States included for 1912 and 1913 manufactures of india rubber and gutta percha to the value of $297,379, and $296,445, respectively; crude rubber worth $7,038,930 and $3,920,395; crude gutta percha valued at $148,676 and $121,703, and waste rubber amounting to $82,857 and $25,784.

VALUE OF RUBBER GOODS IMPORTED INTO GERMANY.

German statistics show the value of the importations of rubber manufactured goods into that country for the last three years as follows: 1911, $6,625,750; 1912, $6,849,250; 1913, $6,600,750. While imports thus show a falling off, exports increased from $30,127,750 in 1912 to $32,070,000 in 1913.

Rubber heels are said to be very popular in Switzerland, with German manufacturers particularly successful in competing for this trade, the demand being principally for a style and quality which retails at 16 cents per pair. The Swiss import duty on rubber heels is at the rate of 40 francs per quintal, or 3½ cents per pound gross weight.

A new building is being erected in Berlin in which to hold the International Automobile Show, scheduled to open early in October of this year. Exhibits will be limited to passenger and pleasure cars, with their parts, accessories, etc., and will include no commercial vehicles. Applications for space must be addressed to the Verein Deutscher Motorfahrzeug-Industrieller, E. V., Unter den Linden 12, Berlin, W. 8.

NEW ZEALAND IMPORTS OF RUBBER GOODS.

Official statistics show the following New Zealand imports for the years 1911 and 1912:

	1911	1912
Belting other than leather....	$170,000	$155,000
Engine packing	80,000	100,000
Other rubber goods	50,000	80,000
	$300,000	$335,000

The proportions in 1912 were from: England, 60 per cent.; Australia, 20 per cent.; United States, 3 per cent.; other countries, 17 per cent.

RITTER, RITTER & CO.'S REVIEW AND FORECAST.

IN a lengthy report Messrs. Ritter, Ritter & Co., of London, deal with the features of the eventful year 1913, with its fluctuations in the prices of rubber, all of which have passed into history.

Of more special interest is their forecast of 1914.

While the figures shown for the production and consumption of 1913 (114,020 and 104,700 tons) differ somewhat from other estimates, they are sufficiently close to afford a basis of comparison. There is, however, a wide discrepancy between the grand totals of visible supply on December 1, 1912 and 1913, which were respectively 16,080 and 24,935 tons. In any calculations for 1914 this last named factor has to be considered.

Messrs. Ritter, on the ground that the prices even as they stand for plantation rubber will induce the companies to force tapping, consider the recent estimate of 65—70,000 tons plantation rubber for 1914 as misleading, placing it at the Akers estimate of 84,250 tons, following up the 50,000 tons reported for 1913. This makes a total estimate for 1914 of:

	Tons.
Plantation	85— 90,000
Mediums, etc.	25— 25,000
Pará and Caucho	35— 40,000
	145—155,000
Adding visible supply on Jan. 1, 1914	25— 25,000
About	170—180,000

which consumption will be asked to absorb. Against this the world's consumption, on basis of a 10 per cent. advance on 1913, will only make about 115,000 tons.

Such is the problem before the trade! The factor open to discussion is the possible excess over the lower estimate of the actual shipments of plantation rubber this year. In fact, on the basis of the progressively increased yield of older trees, the prospective quantity of plantation rubber for 1914 is shown as 90,750 tons. The opinion is expressed that an enormous overproduction is now in progress. Messrs. Ritter ask "What will become of the surplus of about 55—65,000 tons, and at what prices will it be taken up? Will it be possible to increase consumption by adding a larger percentage of actual rubber to the compositions of manufactured goods? Will the manufacture of new articles expand consumption materially? It is at present impossible to foresee any new outlets for the above surplus. . . There remains only the question as to how far prices must be lowered to effect its realization and to place the position on a sound basis."

Messrs. Ritter point out that their forecast of March, 1913, of 2s. 6d.—3s. (60.81—72.98c.) for plantation rubber during the fall, though objected to at the time it was made, was more than justified by subsequent events.

As to the crucial point of the cost of production the following opinion is expressed as to the future:

"It must not be forgotten that the present level of costs . . . can be reduced still further to a considerable extent and will ultimately range about 6—7 pence (12.16—14.19c.) per pound. An ultimate selling price of 8—9d. (16.21—18.24c.) per pound, therefore, appears unavoidable. . . . Do the plantation companies seriously expect that the present inflated price level of about 2s. 5d.—2s. 6d. (58.79—60.81c.) will be kept up?"

These opinions are quoted as illustrating possibly extreme views, but none the less of interest.

There is said to be considerable demand in India for hose supporters, the rubber in this article wearing out very quickly under conditions of climate which prevail there.

RUBBER GROWERS' ASSOCIATION.

THE meeting of the Rubber Growers' Association, held in London on February 19, was of special interest, as it enabled the officials to concisely explain the recent features of the rubber market. Chief interest naturally attached to the explanations regarding plantation rubber in the review of the situation by Mr. Noel Trotter, the chairman.

While 1910 will be memorable for the rubber boom, so will 1913 be associated with the great slump, which brought down standard crêpe from 4s. 8d. (113.52c.) to 1s. 10½d. (45.61c.); though it subsequently recovered to 2s. 3d. (54.73c.). This drop led to the formulation of a number of schemes for immediately re-establishing the price of the raw material; including a "central selling agency," or in other words, a plan of collective bargaining. Mr. Trotter expressed the opinion that such a system is inapplicable to the rubber industry as it now exists, with its chief markets so widely separated as they are. Hard fine Pará opened in 1913 at 4s. 7½d. (112.51c.) per pound, closing at the end of the year at 3s. 1½d. (76.02c.) per pound.

The world's total production is estimated at 112,000 tons against 98,950 tons in 1912; consumption having been, respectively, 106,000 and 99,000 tons.

In proof of the excellent quality of plantation is the fact that the production for 1912—28,500 tons, and of 1913—47,000 tons, all went straight into consumption. Messrs. Clayton, Beadle & Stevens, the consulting chemists of the association, had reported plantation as being chemically identical with fine hard. No chemical tests can distinguish between these rubbers when manufactured and they equally withstand the most vigorous stretching and other physical tests.

In September there was a difference in price between the two of 1s. 6d. (36.49c.) per pound. This difference had been reduced by the end of the year to about 8d. (16.21c.) per pound, chiefly owing to the advanced value of plantation rubber. The lower price of plantation has drawn to it the attention of manufacturers accustomed to use Pará in the hope of its enabling them to hold their own with competitors using the Eastern product.

At the time of the fall in 1907-8, Pará had to bear the brunt of the decline; falling to 2s. 9d. (66.89c.) per pound.

STANDARDIZATION.

A strong committee of the association had devoted much time to collecting information on this subject and had recommended the establishment of an experimental factory in the United Kingdom in conjunction with a testing station. The report has had a mixed reception from manufacturers; the idea having been expressed that the gradual education of the plantations to what is required by the manufacturer and the establishment of a range of standards to which the plantations could work, would be preferable.

A fully equipped vulcanizing plant has been installed at Kuala Lumpur, available to planters for testing samples submitted. The matter will be further considered when replies are received from the various manufacturers.

QUALITY.

Owing to the greater care being exercised and the elimination of the tapping of immature trees an improvement has taken place in the preparation and quality of plantation rubber. With a view to further improvement a set of recommendations has been drawn up for the treatment of latex and curing of rubber, so as to ensure uniformity of product. The advantage of such a course is illustrated by the fact that certain manufacturers, for buying purposes, schedule various estates into groups according to the uniformity of quality and type of their rubber.

The London standard of quality for plantation rubber is accepted all over the world.

NEW USES FOR RUBBER.

The speaker also stated that new and larger uses for rubber

are being discovered and that the plantation industry is on a sounder foundation than it has ever been, while the outlook is very promising. Carefully prepared statistics put the world's production for 1914 at 120,000 tons, and granting the usual increase in consumption, the requirements should exceed that amount. He further referred to the competitions to be held at the approaching exhibition as to new uses for rubber.

COST.

The fall in value, Mr. Trotter says, was a blessing in disguise, by forcing such retrenchment as could only have been brought about in so short a time during a period of severe depression. These gains will far outweigh any temporary inconvenience from the low prices. Some Eastern managers have brought down local costs to 9d. (18.25c.) per pound, equal to 1s. (24.33c.) per pound "all in" (or delivered in London).

INSCRIPTION SALES AND AUCTIONS.

Mr. Trotter emphasized the opinion that the system of "Inscription" sales as practiced in various Continental centers would be unworkable in London, while he added that some modification of the system of holding auctions fortnightly was necessary, in view of the increasing quantities continuously arriving.

LAND AND EXPORT TAX ON RUBBER.

The association had been in communication with the government of the Federated Malay States with a view to the reduction of the quit rent for rubber lands and the abolition or diminution of the 2½ per cent. *ad valorem* duty on exported rubber. Both these requests had been declined, but various other services had at times been rendered to the industry by the government named.

FREIGHTS AND LONDON WAREHOUSE CHARGES.

The chairman gave a full explanation of the circumstances under which rubber pays a freight of 66s. (about $16) per 50 cubic feet, while tea, which requires much more care, is only subject to 30s. (or about $7.30). He considered a well organized combination of all producers might achieve success, while he added that there were many and great difficulties in such a course. The excessive warehouse charges in London were criticized and the suggestion was made of establishing a central London warehouse for plantation rubber upon co-operative lines. Direct shipments from the East to the United States and the Continent are rapidly increasing, while the Panama canal will afford further facilities as to the latter market, the principal consumer of rubber.

COMBINATION.

Some discussion took place as to Mr. Trotter's statement that combination was inapplicable; in view of the fact that 286 companies representing 34,265 tons, estimated as representing more than 50 per cent. of the whole, had assented to the principle. Mr. Trotter explained that the report of his speech was the expression of his own personal opinion. Everybody was prepared to agree to the principle of combination, but as soon as an effort was made to apply it, it broke down. The report as presented by Mr. Trotter was ultimately adopted.

MR. BETHUNE ON STANDARDIZATION.

During his recent visit to Ceylon, Mr. A. Bethune, chairman of the Rubber Growers' Association, stated that the evidence of British manufacturers was generally in favor of standardization, but that it was decided to postpone any definite decision until the views of American manufacturers had been obtained. The plan, if adopted, would cost an amount equal to $100,000 and it was imperative to know, before the money was spent, that the scheme would receive the general support of all manufacturers.

DR. LYNE ON STANDARDIZATION.

In addressing the "Tropical Agriculturist," Dr. R. N. Lyne, Director of Agriculture, Ceylon, remarks that while rubber can be produced in Ceylon more cheaply than in any other country in the world, it is necessary to give it the one quality it now lacks, namely, uniformity. The precise steps needed are being studied by the Department of Agriculture. He adds:

"Standardization can be effected either by all plantations adopting a set system of preparation proved to give the best results after vulcanization; or by their ceasing to manufacture rubber and confining their operations solely to the coagulation of latex, the subsequent preparation to be carried out in a few large central factories. . . . We don't suggest that co-operation need stop at preparation, but we believe the industry would be lifted to a different plane if it were adopted even to this extent. . . . It is thus that the dairy industries of the Dominion have been built up."

THE GOODRICH BRANCH IN JAPAN.

The B. F. Goodrich Co., of Akron, Ohio, in a letter to THE INDIA RUBBER WORLD under date of March 7, denies the report in circulation regarding the intention of the company to establish a branch manufacturing plant in Japan under the management of Gosaki Goto, who has been in Akron familiarizing himself with details of rubber goods manufacture. This company already has a general branch business in Japan, at 1 Yurakucho Itchome, Kojimachi-Ku, Tokyo, established about a year ago and in charge of A. P. Van Damm, where a full line of such of the Goodrich products as are salable in that country are carried, a complete corps of salesmen being engaged in their sale.

A NEW PACIFIC SOURCE OF RUBBER.

From Our Japanese Correspondent.

IN 27 degrees north latitude and 142 degrees east longitude lie the Ogasawara Islands; distant 530 nautical miles from Tokyo City. The group is composed of twenty small islands, with a total area of about eleven square miles. Tho situated in the temperate zone, they are traversed by the Japanese Current flowing from the South Sea. The islands are governed by the Prefecture of Tokyo. Some twenty years ago rubber trees were planted at the experimental station, where some of them are now four feet in circumference at a height of three feet from the ground.

The rubber testing well, the authorities began to sell plantations at cost, and sought to encourage the formation of larger ones by purchases from the Department of Agriculture and Commerce. Operations were carried on between 1890 and 1913, which thus encouraged rubber planting. The trees planted include Pará rubber, *Ficus Elastica* and Ceará, the latter being preferred as most suitable, as it grows four or five feet a year.

Pará rubber trees, for climatic reasons, are not regarded as good for this district. Generally speaking, these trees are not old enough for tapping until the eleventh or twelfth year.

Last spring a party of twenty fourteen to fifteen-year-old boys was dispatched to the Suzuki rubber plantation, in Singapore, another company of boys being sent for the same purpose to the Ogasawara Islands. About one-half of the former colony was attacked by beri-beri, malaria and other diseases induced by the climate and temperature; one of the boys dying. The wages of these plantation laborers are 35 to 40 sen (17-20 cents) a day.

JAPANESE PLANTING IN MALAYA.

Japanese settlers seem to have secured nearly 100,000 acres in the Malay peninsula, of which about 2,500 acres have been cultivated. Tapping has so far extended to only 700 acres of the Akuzawáb plantation (Johore), tho an increase of tapping is looked for each year. Normal business conditions are being restored, as compared with last year, when they were very poor.

Among special features of Japanese rubber plantations in Malaya is the fact that the experience of several years shows the cost of producing crude rubber as 8 pence to 12 pence (16 to 24 cents) per pound, while other foreign rubber planters estimate the cost at 18 pence (36 cents). The reason

of this lower range of prices is to be found in payment of lower salaries, Japanese specialization and the cheaper living expenses. Japanese expenses per acre are said to be only one-third to one-fourth of the expenditure per acre of European and American plantation holders. The hire of Indian or Malayan plantation directors is less expensive than that of Europeans or Americans, who, moreover, are usually not inclined to take the part of the plantation owners; while the similarity of race, language and customs tends to co-operation with the Japanese planters on the part of the Malayan directors. The Japanese planters are, however, at a disadvantage through having to pay 10 per cent. for their capital, while Europeans and Americans only pay as a rule 4 per cent. interest.

JAPANESE INSULATED ELECTRIC WIRE COMPANIES.

The general financial depression had reached the commercial and industrial world of Japan in 1913, when the situation of the electrical industry reduced the demand for electric wires and cables. Under these circumstances there has been a keen competition for business, due to the inability of the manufacturing companies to suddenly restrict their production. These conditions resulted in a low scale of prices, disadvantageous for the makers of electric wires and cables.

The balance sheets of the leading companies show the results of their operations. The Yokohama Electric Wire Manufacturing Co., Limited, with a capital of $1,942,769, has made a profit of $99,643, or about 5 per cent. A dividend of 10 per cent. per annum was paid. Among the items of the balance sheet are: Stocks—raw material, $140,813; half manufactured goods, $101,338; manufactures, $91,186.

The Fujikura Electric Wire Co., Limited, paid 10 per cent. and carried down stocks: Raw materials, $137,329; half manufactured goods, $63,209; manufactures, $59,988.

The Nippon Electric Wire & Cable Co. paid 8 per cent. and brought down stocks: Raw materials, $34,256; half manufactured goods, $18,072; manufactures, $43,735. Such are the principal items of the three balance sheets in question.

At an extraordinary general meeting of the Way-Halim (Sumatra) Rubber and Coffee Estates, Limited, convened for the purpose of considering a scheme of reconstruction, resolutions were carried for the voluntary winding up of the company and the appointment of liquidators.

THE BATAVIA INTERNATIONAL RUBBER CONGRESS.

According to the preliminary program of the above congress, to be held from September 7 to 12, the papers to be read, in conjunction with the subsequent discussions, will prove of marked benefit to the cause of rubber technology. They will deal with "Science and Tropical Cultivation," "Planting Distances and Thinning Out," "Progress of Investigation as to the Cultivation of Tropical Plants—Particularly Rubber," "Diseases and Pests of *Hevea*," "Tapping and Tapping Systems," "The Preparation of Rubber," "How to Realize a Reduction of Cost Price of Rubber," "Methods of Testing Raw Rubber," and other subjects.

A number of the most prominent rubber experts from the Malay States will attend the congress and will discuss with their Dutch and Dutch-Indian colleagues problems of mutual interest.

BATAVIA AS A MARKET FOR MOTOR VEHICLES.

According to a report from the German Imperial Consulate General at Batavia, the imports at that point have included the following:

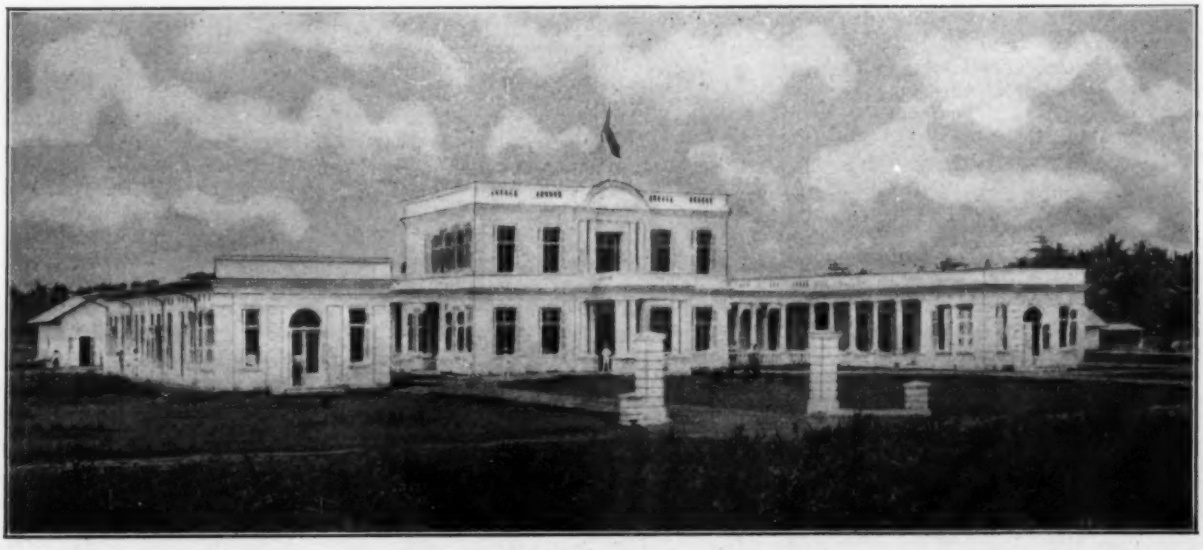
	1910	1911	1912
Bicycles	2,440	3,190	5,185
Automobiles	128	162	270

Similar conditions are said to prevail at Semarang and Sourabaya, the two other leading ports in Java.

THE DELI TESTING STATION AT MEDAN, SUMATRA.

This testing station was established in 1893 by the Deli Planters' Association, and remained till 1903 under the direction of Dr. van Breda de Haan. In 1906 an association was formed with the intention of building a new and more extensive station, with a yearly subscription list amounting to $20,000 during seven years. In June, 1912, it was decided to erect the present building, shown in the accompanying illustration, the annual subscription list being increased to the equivalent of $60,000. The present director, Dr. de Bussy, assumed office on January 1, 1913.

On entering the building the vestibule leads on one side to the directors' laboratory, and on the other to the administrative offices. Abundant space has been allowed in all parts of the building. In the upper portion of the front there is a large room intended for use as a lecture hall and likewise as a museum.



The Deli Testing Station at Medan, Sumatra.

RUBBER NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

IN my letter published in the January number of The India Rubber World I gave some account of the Governor's journey through the interior of the colony to the Brazilian boundary, accompanied by a railway engineer, with a view to ascertaining the prospects of a railway through the forest of this country to the savannah lands. In that letter, as in other letters, I pointed out how vital to the continued prosperity of the balata industry such a railway is. It is extremely satisfactory, therefore, to be able to state that in preparation for the annual meeting of the local legislature the Governor has issued as a White Paper a copy of the despatch sent by him to the Secretary of State for the Colonies definitely recommending such a railway and asking the Imperial Government for a loan in order to encompass the building of the line.

It is designed that the road shall follow the Essequibo river until a suitable opportunity occurs for bridging that wide expanse of water, and to terminate at Takutu on the Ireng river, running close to the head waters of the Rupununi river, where the larger activities of the balata industry are concentrated.

The Governor does not rely upon this industry to provide the proposed railway with traffic, but he recognizes that it will contribute generously to the total receipts required to make the concern a paying one. He relies chiefly upon establishing a flourishing cattle raising industry upon the savannah lands. There is already the promising nucleus of such an industry on these lands, but it does not grow because of the lack of means of transport. Similarly it is hoped that agriculture will prove a profitable means of livelihood.

Professor Harrison, Director of Science and Agriculture, reporting upon several samples of soil submitted from those savannahs, says that much of the land is suitable for agriculture, and among the crops he mentions as likely to prove successful are Pará and Ceará rubber, in the latter respect confirming the experiments of Mr. H. P. C. Melville, the Government Commissioner in the district.

But that the Governor is sensible of the value of the balata industry is testified by the following paragraph in his despatch to the Secretary of State for the Colonies: "More than half of the total production of balata in the colony comes from the Rupununi district. In 1913 the production was 759,375 pounds, out of a total of 1,316,755 pounds. The value of this product in 1912 was 3s. 10d. a pound. The price dropped in the middle of 1913 to 2s. 10d. It is doubtful if the extraction can be profitably continued without cheap transport to the interior. If such transport is provided, as would be the case if this proposed southern line is built, in lieu of the industry ceasing the annual export would probably increase. I do not look upon the forest balata industry as a continuously permanent one, but the present trees of tappable age are not likely to be exhausted under ten years from completing of the line, when young trees will take their place."

It may be worth while to state the main features of the scheme. It is estimated that the cost of the line, at $12,500 a mile, will be $5,625,000; and, allowing $125,000 for improved facilities for wheeled transport across the savannahs, $250,000 for immigration and settling immigrants on the southern lands, and a $250,000 area for a feeder railway from Potaro mouth to the Gold fields, the total cost would amount to $6,250,000. This sum the Governor is asking the Imperial Government to lend the colony. It is not expected that the line will pay at first. Interest and sinking fund on the loan are estimated at $300,000 a year and running expenses at another $250,000, while the receipts for the first few years are only estimated at $250,000, thus leaving for a time an annual deficit of $300,000. The Governor, therefore, asks that the line be constructed with "funds supplied by the Imperial Government, coupled with an annual grant to meet deficit on working expenses until the increased traffic and receipts, or the development of the country due to the construction of the line, make it possible for the colony to assume responsibility."

It is not anticipated that there will be much difficulty with the Imperial Government. To fit the scheme into local conditions will provide the most difficult obstacle to be surmounted, it is felt. This colony enjoys a form of representative government. In the Court of Policy, which passes the laws, eight unofficial members, elected on a popular franchise, sit with eight official members, with the Governor as president, and the Governor's casting vote gives the Government a majority. In the Combind Court, which deals with expenditure, revenue and taxation, however, the unofficial element is reinforced by six additional members (elected on the same franchise) known as Financial Representatives—thus giving them a majority. But the power of the unofficial element is limited. It can reduce expenditure, but it may not initiate it. It may recommend new expenditure, which the Government may accept or reject at its pleasure.

In his despatch to the Secretary of State the Governor alludes to the local difficulty. He says: "An initial objection that is likely to be raised to the grant of an Imperial loan for railway construction is that this colony possesses very complete local control, by means of a very large elective majority in the Combined Court, over both revenue and expenditure. It is an axiom of the Imperial Treasury that without control over the finances of a Dependency no advances can be made from Imperial funds. This is a very reasonable rule, but I believe I am right in saying that, altho the people cherish greatly their present constitution, yet they would willingly, in order to secure the much-longed-for railway to the interior, assent to such a reduction in the numbers of the elective section or increase to the official members as to give the Home Government, through the Governor and his officers, the same power and control over the administration and finances as now exist in, say, Trinidad; if not indefinitely, at any rate until the colony is in a position to assume full responsibility for the financial obligations the construction and working of the proposed railway must entail."

While the Governor's proposal had been enthusiastically received, the suggestion that the constitution shall be modified has created much difference of opinion. There are many who feel that the railway at such a cost would not be worth having, while others do not value the constitution so highly.

THE RUBBER INDUSTRY—THE GOVERNOR'S OPTIMISM.

In his annual address to the legislature the Governor gave some interesting particulars about the rubber industry. He said: "Mr. Bancroft, the newly appointed Assistant Director of Science and Agriculture, came fresh from the Malay Peninsula, which has the most extensive rubber plantations in the world. He has most successfully supervised the tapping on both government and private lands of the few rubber trees of tappable age. The results obtained under his supervision are quite equal to those secured in Asia and conclusively prove what I have never doubted—that Pará rubber can be grown in British Guiana quite as well as in Ceylon, the Malay States and Java. Unfortunately the market value of rubber has greatly fallen during the past year, and—what was never expected—plantation rubber, which had previously sold at a premium over fine hard Pará, has fallen to a discount of from ten pence to one shilling (20 cents to 24 cents) below the price of the Amazon product. This depreciation is thought by some to be due to prejudice, but is principally, in all probability, the result of variation in quality of the product. That plantation rubber, when standardized to quality, will sell as readily as the jungle product can hardly be doubted, and personally I still consider that rubber planting in this colony should be a profitable occupation, situated as it is so much nearer to the markets of the world than the plantations in Asia. One cannot help regretting that the cultivation was not taken up earlier and more extensively."

Some Rubber Planting Notes.

THE CENTRAL COLLEGE OF TROPICAL AGRICULTURE.

AS it will be recalled, Professor Wyndham Dunstan, Director of the Imperial Institute, London, recently visited Ceylon, where he attended the meetings of the Committee on the College of Tropical Agriculture. He has since been on an official visit to India. It was Professor Dunstan's suggestion that a College of Agriculture suited to the needs of the whole Empire should be founded in Ceylon. The influential London committee then appointed, agreed (notwithstanding opposition from other countries) upon a scheme for a college there, details of which were forwarded to the Board of Agriculture in that island and respecting which Professor Dunstan has been in consultation with the local authorities.

SAPUMALKANDE RUBBER CO., LTD. (CEYLON).

From a total area of 2,786 acres, of which 1,970 are cultivated, this company produced in 1913 323,984 pounds, against 241,324 pounds in 1912.

MR. LOUDOUN-SHAND ON THE MARKET.

In a recent address to the shareholders of the Hevea Rubber Trust of London (a company with a paid-up capital equalling $375,000), Mr. J. L. Loudoun-Shand (a director in some ten companies) opposed the hoarding up of rubber, the temporary advance in price being likely to prove disastrous in the long run. He expressed his belief in an open public market, with sales as frequently as possible, thus facilitating business and keeping the planting companies before their customers in every country.

DUNLOP'S MANAGING DIRECTOR ON RUBBER CURING.

Mr. A. Du Cros, managing director and deputy chairman of the Dunlop Rubber Co., Ltd., recently visited the Botanic Gardens at Peradeniya, Ceylon, where he was much impressed by some of the blocks turned out by the various smoking apparatus now in existence. He stated that his firm only dealt in three kinds of rubber—hard Pará; rubber produced on their own estates in Ceylon and Malaya, and certain brands of plantation rubber which had been found of consistent regularity. All the machine work was done at home with satisfactory results, while on their plantations they aimed at curing the latex. In his opinion planters would all have to revert to some simple process of curing.

GERMAN NEW GUINEA CO.

The report of this company for 1913 shows a relatively large increase upon 1912, the yield of rubber amounting to 19½ tons as compared with 11½ tons, the distribution being as follows: *Ficus elastica*, 13¾ tons; *Castilloa elastica*, 4 tons; *Hevea brasiliensis*, 1¼ tons. In view of the prevailing rubber crisis, efforts are being directed towards the production of a first-class product, with a view to meeting the increasing competition.

The exports of the year 1913-14 from the British Solomon Islands will include a small quantity of rubber, the result of the tapping of a number of trees which have attained the age of four years. Cotton in small quantities has also been produced on these islands, but labor to make the cultivation of either product a profitable venture is not at present available.

SELABA RUBBER ESTATES, LTD. (FEDERATED MALAY STATES).

Out of a total area of 2,832 acres, 2,493 are cultivated, and in 1913 produced 407,069 pounds. The crop of 1912 was 319,595 pounds.

GOLDEN HOPE RUBBER ESTATE, LTD. (FEDERATED MALAY STATES).

Of a total area of 897 acres, 850 are planted in rubber, and in 1913 produced 179,526 pounds, against 146,430 pounds recorded for 1912.

STATISTICS OF FEDERATED MALAY STATES.

Official statistics to the end of 1912 show the following quantities of rubber exported from the Federated Malay States during the last 6 years: 1907, 1,984,285 pounds; 1908, 3,165,600 pounds; 1909, 6,087,815 pounds; 1910, 12,212,526 pounds; 1911, 19,695,330 pounds; 1912, 34,732,415 pounds.

The total area under rubber was as follows:

	1910	1911	1912
Number of estates	435	700	703
Acreage in possession	579,598	766,793	794,545
Acreage planted to December 31	245,774	352,974	399,197

In 1912 the area opened for rubber was 46,223 acres, as compared with 107,200 in 1911.

The report of the Director of Agriculture states that rubber is now being produced in Malaya and placed on the market at 1s. to 1s. 2d. (24.33c. to 28.38c.) per pound. A further reduction of cost is anticipated as the result of various economies. Special attention is being paid to mechanical labor-saving devices in connection with the experimental plantation at Kuala Lumpur.

In the concluding words of his report, the Director of Agriculture says that there is no need to fear the competition of synthetic rubber for several years, when plantation rubber can be put on the market by well-managed estates at 1s. (24.33c.) a pound.

The number of laborers on estates of over a hundred acres in 1912 was 188,050, being an increase of about 22,000 as compared with 1911. Wages varied according to the place of employment, Chinese workers earning in some cases as much as $1.20 a day and Tamals as little as 25 cents a day.

FOREIGN COMPETITION IN MALAYA.

As compared with 1896 the Straits Settlements imports of British goods for 1912 showed a gain of about 90 per cent., while those from the continent of Europe and the United States more than doubled in that period. India rubber goods are among the German products showing an increased trade with the Straits Settlements between 1896 and 1912.

SUMATRA'S INCREASING PRODUCTION OF RUBBER.

The reports of three Sumatra companies to January 31, 1914, show largely increased outputs. For five months then terminating, the United Serdang Rubber Plantations report 705,456 pounds, as compared with 392,189 pounds during the corresponding period a year earlier. For 12 months the Sialang Rubber Estates show 301,616 pounds against 176,586 pounds for the twelve months ending January 31, 1913.

SOURABAYA RUBBER EXPORTS.

The years 1910 to 1912 showed a progressive development in rubber exports from Sourabaya, Java, the respective figures being 31, 62½ and 103½ tons. Of the last named quantity about 50 per cent. went to the Netherlands, 35 per cent. to Great Britain and 15 per cent. to other countries.

BELGIAN ENGINEER VISITS GERMAN EAST AFRICA.

During the years 1912 and 1913 M. Paul Janssens, engineer, attached to the Belgian Department of Agriculture, visited German East Africa and reported that the plantations of *Manihot Glaziovii* in that region had been developed in a remarkable manner. He gives the annexed details:

	Acres		Trees		Exports of rubber.
	Planted.	In bearing.	Planted.	In bearing.	Tons.
1908.....	....	....	.....	.....	87
1909.....	29,665	5,372	11,868,466	1,924,454	218
1910.....	40,530	9,360	14,425,526	3,497,367	414
1911.....	63,710	21,416	20,293,709	8,544,662	685
1912.....	....	....	.....	.....	856

The report states that the total German imports of rubber amounted in 1912 to 20,586 tons. It further adds that the *Manihot* requires only a small rainfall, being capable of standing protracted seasons of drought. It is admitted that a yearly rainfall exceeding 39 inches, while increasing the quantity of latex materially reduces the production of rubber. The tree is satisfied with a relatively poor soil, provided the latter is deep and, above all, permeable; the best soil being covered with thick brush or small forests. While *Manihot* flourishes up to 5,000 feet above sea level the most suitable elevation appears to be about 1,650 feet. Marshy or humid soils should always be avoided, a preference being given to locations on a slope from which water easily flows.

M. Janssens' report likewise deals with tapping, coagulation, drying and packing, as well as various insect and other pests causing trouble in rubber cultivation.

RUBBER IN BRITISH EAST AFRICA.

Exports of rubber from British East Africa are reported as follows for the year 1912-13:

	Tons.	Value.
Wild rubber.....	53	$76,260
Plantation rubber.....	24	36,445
Total	77	$112,705

The whole of the plantation rubber went to Great Britain, while of the wild rubber 25 tons went to England, 13 tons to Zanzibar and 15 tons to Germany.

PROPOSED SALE OF RUBBER SEEDS.

During August and September next, the Agricultural Department of Southern Nigeria will offer 400,000 Pará rubber seeds for sale. The price is 20s. ($4.86) per 1,000 exclusive of freight charges. The seeds will be specially selected by the Agricultural Department from trees under their control. Applications should be addressed to the assistant director at Ibadan and the superintendent of agriculture at Calabar.

KAMERUN RUBBER EXPORTS.

German statistics show the rubber exports from Kamerun to have been: 1908—1,214 tons; 1909—1,518 tons; 1910—1,962 tons; 1911—2,708 tons; 1912—2,811 tons. In the last named year about 90 per cent. of the quantity went to Germany and the bulk of the remainder to England.

A report by a reputable brokerage firm of Madras on the rubber industry of Southern India—confined chiefly to Travancore and Cochin—placed the number of important plantations in that section in 1912 at 23, with a planted area of 36,606 acres, and a reserve of 34,791 acres. It also estimated the output for that year—no definite details of which are available—at 931,500 pounds.

NOTES FROM THE COTTON TRADE.

THE 1913 COTTON CROP.

FROM recent statistical indications, the American cotton crop of 1913, 13,677,000 bales, will rank as the most valuable ever grown in this country. The lint represented $850,570,500, and the seed and linters $125,000,000, making a total value of $975,570,000.

MILL CONSTRUCTION SLOW.

With reference to the restricted erection of cotton mills in 1913, it has been remarked that the object of operating a factory is not to make cloth but to sell it. Unless there is a probability of selling their product there is no inducement to build mills. This explanation is given of the fact that 62½ per cent. of the total American crop is exported and intended to refute the argument that as long as a single bale is exported, there is room for it to be worked up at home.

MANUFACTURED COTTON IMPORTS.

Total imports of manufactured cotton goods have remained about the same during the last three calendar years: 1911—$65,804,994; 1912—$67,978,226; 1913—$65,359,542. In 1913 laces, etc., represented about 55 per cent., wearing apparel 11 per cent., and cotton cloths 15 per cent.

ALTERNATIVE SOURCES OF SEA ISLAND COTTON.

In a lecture at Glasgow, Professor John A. Todd stated that in the event of the boll weevil destroying the American crop of Sea Island cotton, the West Indies and Egypt were the only two parts of the world capable of supplying the deficiency.

EXPORTS OF UNMANUFACTURED COTTON.

According to official returns, exports of unmanufactured cotton for the calendar year 1913 represented 8,609,488 bales, value $575,488,090. The amounts for previous years were: 1911—8,607,401 bales, value $517,053,575; 1912—10,694,472 bales, value $623,077,439.

MANUFACTURED COTTON EXPORTS.

Manufactured exports for 1913 represented a total of $55,536,267; as compared with $45,686,591 for 1911 and $52,450,888 for 1912. Of these amounts in 1913 cotton cloths represented about 60 per cent., waste cotton 9 per cent., wearing apparel 20 per cent.

THE CHILEAN TEXTILE TRADE.

Chile being a direct gainer by the Panama Canal in its trade with the United States, it is of interest to note that the textile imports of that country represented in 1911 about 9½ million dollars, and in 1912 10 million. Of the latter amount cotton formed about 50 per cent. and wool 27½ per cent.

Of the entire textile imports, the United Kingdom supplies about 40 per cent., Germany 30 per cent. and the United States 3 per cent. There is thus consequently a good opening for the expansion of trade in cotton goods with Chile by the United States. In 1912 it reached about $800,000, according to Washington statistics.

ABOLITION OF WASTES IN COTTON MANUFACTURING.

The application of chemistry to finshing cotton goods has led to the abolition of many forms of waste through skill in combining chemical equivalents.

FIVE LARGEST COTTON STATES.

A report of the comparative ginnings in various states of the crop of 1913 to January 16 included: Texas, 3,718,725 bales; Georgia, 2,316,304 bales; Alabama, 1,475,642 bales; South Carolina, 1,369,434 bales; Mississippi, 1,176,626 bales.

The ginnings of Sea Island cotton to above date included: Florida, 25,356 bales; Georgia, 42,650 bales.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED FEBRUARY 3, 1914.

NO. 1,085,641. Spring wheel. F. Stitzel, Louisville, Ky.
1,085,700. Resilient wheel. H. C. Percy, Natchitoches, La.
1,085,723. Vehicle wheel. J. D. Campbell, Newark, and A. J. Martin, Passaic, N. J.
1,085,772. Vehicle wheel rim. J. H. Wagenhorst, Akron, Ohio.
1,085,773. Vehicle wheel rim. J. H. Wagenhorst, Akron, Ohio.
1,085,883. Inhaler. C. Wilson, New York.
1,085,873. Spare tire holder. P. Morrissey, Easthampton, assignor to T. A. Cotter, Willimantic, Conn.
1,085,926. Apparatus for producing vacuums. J. I. McCormick, Chicago, Ill.
1,086,139. Process of manufacturing caoutchouc-like products. A. Caroselli, assignor to the firm of Chemische Fabrik Florsheim, Dr. H. Noerdlinger—both of Florsheim-on-the-Main, Germany.
1,086,162. Spring wheel. D. A. Gray, Chattanooga, Tenn.
1,086,174. A resilient tire shock absorber. O. J. Hobson, Portland, Ore., assignor to Hobson Tire Co., Vancouver, Washington.
1,086,228. Cushion tire. J. C. Schleicher, Mount Vernon, N. Y.
1,086,288. Lawn sprinkler. H. Gibbs, assignor to W. D. Allen Mfg. Co.—both of Chicago, Ill.
1,086,290. Hose supporter. R. Gordon, West Newton, Mass.
1,086,330. Vehicle wheel. T. Midgley, Hartford, Conn., assignor to the United States Tire Co.
1,086,333. Vehicle wheel. C. L. Russell, Rexburg, Idaho.
1,086,338. Insulating lining. C. L. Sherman, Philadelphia, Pa.

Designs.

45,212. Hot water bottle. F. O. Williams, Brookline, assignor to United Drug Co., Boston, Mass.
45,213. Water bottle, syringe bag or similar article. F. O. Williams, Brookline, assignor to United Drug Co., Boston, Mass.
45,216. Lawn Sprinkler. C. C. Armstrong, Marysville, Ohio.

Trade Marks.

61,184. Revere Rubber Co., Providence, R. I., and Chelsea, Mass. The words *Spring Step*. For rubber heels for boots and shoes.
69,687. The Stenography and Reporting Co., Trenton, N. J. The word *Sarco*. For rubber erasers and other business stationery.
73,663. Ten Broeck Tyre Co., Louisville, Ky. The words *Ten Broeck*. For tire treads.
74,360. J. H. Gardner, San Jose, Cal. Illustration of an auto with words *Puncture Proof Dixie Compound*. For puncture proof compound.
74,364. J. G. Helfrich, Baltimore, Md. The words *Affinity Shoe, The real "Sole Mate,"* written round circle with woman's head and shoe in center. For boots, shoes, etc., made wholly or in part of leather, canvas or rubber.
74,530. H. P. Rindskopf, New York. The word *Milady*. For dress shields.

ISSUED FEBRUARY 10, 1914.

1,086,354. Hose rack. E. D. Dysinger, Buffalo, N. Y.
1,086,370. Wheel. E. R. Josselyn, San Martin, Cal.
1,086,377. Rear tire-holder for automobiles. F. Lederer, Milwaukee, Wis.
1,086,447. Pneumatic tire. S. E. Feige, Akron, Ohio.
1,086,497. Spring wheel. N. Withers and C. Speidel, Richland Centre, Wis.
1,086,523. Tire protector composed of fabric and rubber protected metal discs. J. E. and L. Goodman, Stockton, Cal.
1,086,550. Pressure relief valve for pneumatic tires. W. J. Morrison, Sioux City, Iowa.
1,086,558. Antiskid chain. C. R. Rawdon and E. M. Parker, St. Louis, Mo.
1,086,646. Heating apparatus for water bag. H. W. Christian, Longbeach, Cal.
1,086,653. Protective case for pneumatic tires. L. Dan, Portland, Ore.
1,086,689. Spring wheel. J. L. Parker, Galgate, near Lancaster, England.
1,086,696. Tire armor. N. Anderson, Ballston Spa, N. Y.
1,086,757. Pneumatic tire. M. A. Dees, Pascagoula, Miss., assignor to American Tire Co., St. Louis, Mo.
1,086,760. Demountable rim locking device. H. C. Ford, Jamaica, N. Y., assignor to E. W. Hill, New York.
1,086,782. Pneumatic shoe form. O. E. Moore, Coldwater, Kan.
1,086,786. Vehicle wheel. A. F. Priest, Akron, Ohio.
1,086,805. Pneumatic tired wheel. E. Cannes, New York.
1,086,815. Tire protector. L. S. Gill, Elko, Nev.
1,086,897. A composing device for printers, comprising a layer of elastic material. G. R. Cornwall, Rye, N. Y., assignor to American Planograph Co., of West Virginia.
1,086,923. Resilient tire. B. E. Leas, Luverne, Minn.
1,086,924. Armored pneumatic tire. J. E. Lee, Conshohocken, Pa.
1,086,947. Pneumatic tire. J. E. Smith, Clinton, Iowa.
1,087,006. Spray nozzle. L. E. Fitzsimons, assignor to the Novelty Mfg. Co.—both of Waterbury, Conn.
1,087,013. Resilient tire. C. Herminghuysen, Van Wert, Ohio.
1,087,038. Resilient wheel. G. C. Moore, Campton, Ga.

Reissue.

13,687. Power tire pump. H. D. Waterhouse, Wollaston, Mass.

Trade Marks.

53,985. Howe Rubber Co., Newark, N. J. The words *Air Weight*. For ankle protectors, hot water bags, etc.
67,468. The Russell Mfg. Co., Middletown, Conn. The word *Stanfire*. For woven machine belting.
67,610. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The word *Micarta*. For electric insulating sheets and tubes.
70,273. United States Rubber Co., New York. The words *Austin Steel Wool Brand*. For rubber boots and shoes, etc.
71,840. F. A. O. Schwarz, New York. Illustration of bell. For golf balls, etc.
72,940. A. W. Faber, Stein, near Nuremberg, and Berlin, Germany. Illustration of whale. For rubber erasers.
73,062. A. G. Spalding & Bros., New York. The word *Olympic*. Golf balls, etc.
74,529. H. P. Rindskopf, New York. The word *Brooklyn's*. For dress shields.
74,901. Wallace, Scott & Co., Ltd., Glasgow, Scotland. Illustration of coat of arms. For rainproof coats and other articles of apparel.

ISSUED FEBRUARY 17, 1914.

1,087,201. Pump for automobile tires. J. H. Templin, Philadelphia, Pa.
1,087,224. Vehicle wheel. J. J. Fahrney, Timberville, Va.
1,087,261. Process of making isoprene. C. Ruder, Wandsbek, near Hamburg, Germany.
1,087,312. Armor for pneumatic tires. C. Matson, Elizabeth, assignor of one-half to E. Huch, and one-half to R. Burkart, Aldene, N. J.
1,087,391. Resilient wheel. R. A. Nicholson, Russellville, Okla.
1,087,467. Vehicle wheel rim. E. C. Shaw, assignor to the B. F. Goodrich Co.—both of Akron, Ohio.
1,087,474. Resilient tire. H. Wellstead, Evanston, Ill.
1,087,491. Life saving garment. J. Herlihy, San Francisco, Cal.
1,087,534. Detachable wheel rim. H. C. Gibson, New York, assignor to The Firestone Tire & Rubber Co., Akron, Ohio.
1,087,589. Vulcanizing apparatus. J. C. Klaehn, Berlin, Ontario, assignor to Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.
1,087,618. Tire fastening device. R. C. Wall, Philadelphia, Pa.
1,087,626. Flexible suspension wheel for automobiles. O. Allen, Denver, Colo.
1,087,628. Demountable rim. J. A. Anglada, New York, assignor to the Anglada Co., of Michigan.
1,087,637. Storage battery separator comprising a thin sheet of wood having a casing of rubber. C. C. Carpenter, Niagara Falls, New York, assignor to The United States Light & Heating Co., of New York.
1,087,682. Resilient tread. P. W. Pratt, Boston, Mass.
1,087,731. Elastic metal tire. G. E. Dargatz, Kansas City, Mo.
1,087,815. Horse shoe filling, composed of soft rubber, gutta percha, caoutchouc, etc. A. Oetker, Ottensen, near Altona, Germany.
1,087,829. Attachment for retaining rubber shoes. T. C. Ridge, Carthage, Ill.
1,087,846. Tire spreading device. J. O. Stewart, Spokane, Wash.

Design.

42,281. Water bottle, syringe bag or similar article. F. O. Williams, Brookline, assignor to United Drug Co., Boston, Mass.

Trade Marks.

63,393. St. Paul Rubber Co., St. Paul, Minn. Solid black circle on which appear in white letters the words *St. Paul Rubber Co.* and *Hickory Brand*. For rain coats, rubber boots, etc.
67,564. C. H. Graves, Providence, R. I. The word *Invincible*. For rubber and leather tires for vehicles.
69,967. Société Generale des Etablissements Bergougnan, Clermont-Ferrand, France. The words *Le Gaulois*. For rubber tires, treads, etc.
72,462. A. S. Carmichael, Denver, Colo. The words *Joy Ride*. A compound for curing punctures in tires.
74,773. Apsley Rubber Co., Hudson, Mass. *A. R. Co.* in the form of a circle. For rubber coats, boots and shoes.

ISSUED FEBRUARY 24, 1914.

1,087,919. Moistening apparatus. M. J. Buckley, Milwaukee, Wis.
1,087,942. Resuscitating apparatus. C. M. Hammond, Memphis, Tenn.
1,087,960. Spring wheel for vehicles. W. J. Luttrell, Honey Grove, Tex.
1,087,963. Spring wheel. M. Mathiesen, San Antonio, Tex., assignor to Mathiesen Spring Cushion Wheel Co., of Maine.
1,087,979. Deflation indicator. F. W. Putnam, Binghamton, N. Y.
1,088,053. Resilient tire. N. L., Raymond P. and J. F. Baker, Elm Grove, W. Va.
1,088,108. Split rim construction. F. and N. M. Spranger, Detroit, Mich.
1,088,200. Detachable tire fastener. J. D. Bowne, Jamesburg, N. J.
1,088,312. Bowling pin with sheathing of rubber composition. M. J. Whelan, Muskegon, Mich., assignor to Brunswick-Balke-Collender Co., of Delaware.

1,088,349. Removable rim attachment for vehicle wheels. M. Küller, Gross-Lichterfelde, near Berlin, Germany.

1,088,386. Spring wheel. G. Weaver, Jellico, Tenn.

1,088,540. Road vehicle wheel. S. H. Cope, assignor to The Warland Dual Rim Co., Ltd.—both of Birmingham, England.

1,088,543. Liner for tires. S. E. Covington, Bellefontaine, Ohio.

1,088,551. Manufacture of products from india rubber. H. Dogny, V. Henri and E. Veil-Picard, Paris, France.

1,088,596. Resilient tire for vehicles. P. Lavelle, Johnstown, Pa.

1,088,656. Vehicle wheel rim. J. R. Gammeter, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.

1,088,663. Pneumatic bulb. I. F. Kepler, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.

Trade Marks.

67,083. Motorcycle Equipment Co., Hammondsport, N. Y. The word *Meco*. Pumps for inflating motorcycle tires, tools for removing motorcycle tires.

71,473. Churchill & Alden Co., Brockton, Mass. The word *Ralston*. For boots and shoes of leather, rubber, etc.

71,637. Johnson & Johnson, New Brunswick, N. J. Linked circle. For rubber protectives, surgical dressings, etc.

72,590. L. Bertram, Hanover, Germany. The word *Russka*. For surgical rubber goods, rubber sponges, etc.

74,291. The National Belting Co., Elyria, Ohio. The words *Red Jacket*. For belts and belting.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of those listed below was in 1912.
**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 4, 1914.]

23,200 (1912). Tire attachments to rims. G. J. Arnold, "Toorak," Torquay.

23,205 (1912). Detachable rim attachments to wheels. E. M. Begon, St. Genis-Laval, Rhone, France.

23,219 (1912). Apparatus for coagulating latex. F. A. Byrne, 2 Ludgate Hill, Birmingham.

23,226 (1912). Vulcanizing tires. W. Gummer, 29 Alma Square, St. John's Wood, London.

23,296 (1912). Jackets and covers for wheel tires, and means for securing to rims. J. Stungo, 11 Eylauerstrasse, Berlin.

23,325 (1912). Protective facing of hard rubber for lacrosse stick. H. Broomfield, 4 Oxford st., Manchester, England.

23,383 (1912). Spring wheels with continuous outer rigid ring and pneumatic cushion. P. Magnus, 43 Rae st., North Fitzroy, near Melbourne, Australia.

23,390 (1912). Process of manufacturing rubber driving belts, etc. A. E. Wale, Coleshill, near Birmingham.

*23,405 (1912). Stocking suspenders. D. Kops, 435 Riverside Drive, New York, U. S. A.

*23,406 (1912). Corsets provided with hose supporters. D. Kops, 435 Riverside Drive, New York, U. S. A.

*23,407 (1912). Corset. D. Kops, 435 Riverside Drive, New York, U. S. A.

23,451 (1912). Vulcanizing apparatus for tires and such articles. H. R. Nash, High Bank, Church st., Altrincham, Cheshire.

*23,476. (1912). Nozzle for fire hose, etc. J. H. Cottle, 64 East 101st st., New York, U. S. A.

23,537 (1912). Filigree strengthener for vulcanite dental plates. R. F. Hopper, 123 Hatfield Road, St. Albans, Hertfordshire.

23,558 (1912). Reservoir pens. J. Gilbert, Board of Trade Bldg., Victoria, B. C., Canada.

23,571 (1912). Flushing apparatus with rubber padded stops. W. Beamish, Stoneycroft, Hastings, New Zealand.

23,632 (1912). Wheel tires. Continental Caoutchouc & Gutta Percha Cie, 100 Vahrenwalderstrasse, Hanover, Germany.

*23,648 (1912). India rubber, etc. F. E. Barrows, 918 F st., N. W., Washington, D. C., U. S. A.

23,671 (1912). Medical vaporizers; spray producers. C. Fellerer, Freising, Germany.

23,673 (1912). Vehicle wheels; springs. L. A. Desy, 120 Sanguinet st., Montreal, Canada.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 11, 1914.]

23,889 (1912). Patch for repairing the outer cover of a pneumatic tire. H. H. Burton, Granby Rubber Works, Post Office Place, Leicester.

23,944 (1912). Rubber nipples for feeding bottles. R. Haddan, 31 Bedford st., Strand, London.

23,998 (1912). Appliance for damping stamps, envelopes, etc., comprising an india rubber water container. P. Nussbaum, 23 Ludgate Hill, London.

24,030 (1912). Jackets and covers for wheel tires. D. Maggiora, 17 Gracechurch st., London.

24,041(1912). Plastic compositions containing india rubber, gutta percha, etc. W. J. Luxmoore, 23 Red Lion Square, London.

24,064 (1912). Vulcanizing tires. W. Gummer, 29 Alma Square, St. John's Wood, London.

24,077 (1912). Puncture preventing band of vulcanite or other material for pneumatic tires. E. P. Carter, 58 Rowan Road, Bexley Heath, Kent.

*24,141 (1912). Composite fabric for tires, etc., consisting of a mercerized fabric saturated with rubber or rubber substitute. A. H. Henderson, 2624 North Calvert st., Baltimore, Md., U. S. A.

24,156 (1912). Coagulating latex. W. Pahl, 4 Ringstrasse, Dortmund, Prussia.

*24,233 (1912). Protective band for wheel tires. J. E. and L. Goodman, 218 E. Main st., Stockton, Cal., U. S. A.

24,291 (1912). Spring wheel embodying the use of india rubber balls. G. P. Milnes, Rowcroft, Stroud, Gloucestershire.

24,297 (1912). Securing means for garment shields comprising a pair of elastic bands. W. H. Hargroves, 45 Banner st., Bunhill Row, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 18, 1914.]

24,355 (1912). Tool for repairing punctures in pneumatic tires, etc. R. W. Sampson, 353 Olivier ave., Westmount, Quebec, Canada.

24,387 (1912). Golf balls. A. Johnston and North British Rubber Co., Castle Mills, Fountainbridge, Edinburgh.

24,388 (1912). Athletic overshoe. S. F. Roberts and North British Rubber Co., Castle Mills, Fountainbridge, Edinburgh.

24,415 (1912). Tread bands, projections and surfaces. H. Kuhnen, 21 Schlossberg, Eisenach, Germany.

24,450 (1912). Pneumatic tires; woven fabrics; compound fabrics. P. Raynier, Coux, Ardeche, France.

24,471 (1912). Golf balls. J. E. James, 1 Acres Field, Bolton; J. Child, 367 Moss Lane, East, Whitworth Park, and B. S. Atwood, 15 Cavendish Road, Chorlton-cum-Hardy—both in Manchester—and J. W. Hyde, 19 Victoria Square, Bolton.

24,576 (1912). Tire treads. A. Russling, "The Croft," Welburn Drive, Far Headingley, Leeds.

24,611 (1912). An elastic tire having a projecting tread. B. A. Godek, 60 Boulevard Clichy, and I. Benjamins, 17 Boulevard Exelmans—both in Paris.

*24,629 (1912). Elastic fabrics. W. Kops, 435 Riverside Drive, New York, U. S. A.

24,637 (1912). Caoutchouc substances. Farbenfabriken vorm. F. Bayer & Co., Leverkusen, near Cologne, Germany.

24,675 (1912). A device for use in practicing golf putting. C. H. Minshall, St. Martins, Portland ave., Exmouth, Devon.

24,688 (1912). Life-saving equipments for submarines. Maschinenfabrik "Westfalia" Akt.-Ges. Gelsenkirchen, Westphalia, Germany.

24,720 (1912). Non-slipping devices formed of steel bristles set in backing of rubber, etc. T. and G. Pollard, 1 Western ave., Burnley.

24,795 (1912). Coagulating india rubber, gutta percha or balata. W. Pahl, 24 Ringstrasse, Dortmund, Prussia.

24,807 (1912). Fountain pen with an inner hard rubber tube. J. Y. Johnson, 47 Lincoln's Inn Fields, London.

24,854 (1912). Treating rubber. F. A. Byrne, 2 Ludgate Hill, Birmingham.

*24,878 (1912). Securing artificial teeth to vulcanite dentures, using in the process a solution of rubber. P. C. M. Ash, 5 Broad st., Golden Square, London, and A. Luns, 620 Race st., Philadelphia, Pa., U. S. A.

24,882 (1912). Process of uniting textile fabric to enameled leather or enameled cloth. S. J. Ward, 19 Cromwell ave., Highgate, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 25, 1914.]

24,962 (1912). Puncture closing composition. F. R. Mason, "Sunnyside," St. John's Road, Brecon, South Wales.

24,970 (1912). Tobacco moisteners comprising discs of vulcanite or other material. C. A. Barrett, 100 Hillfield ave., Crouch End, London.

24,977 (1912). Covers for pneumatic cushions for wheels. A. F. Hawksley, Fairhaven, Lancashire.

25,034 (1912). Pneumatic wheel tires. S. J. Vaughan, The Woodlands, Ruckinge, Kent.

25,039 (1912). Surgical pads. R. E. Nolde, 73 Welford Road, Leicester.

25,047 (1912). Reinforcement for pneumatic tire tread. S. C. Caddy, Rook Hill House, Keynsham, near Bristol, and W. H. Welch, 4 Dongola ave., Bristol.

25,055 (1912). Reclaiming rubber. E. Zappert, 27 Chancery Lane, London.

25,157 (1912). Sectional wheel tires. O. T. Banks, 49 Mortimer st., Cavendish Square, London.

25,172 (1912). Tire covers comprising fabric layers adhered together by rubber solution. G. W. Beldam, Boston Lodge, Ealing, London, and A. U. B. Ryall, "Granville," Wind Mill Road, Brentford, Middlesex.

25,227 (1912). Ear instruments comprising hard rubber cups. H. F. and J. G. Kalse, Winnipeg, Canada.

25,230 (1912). Wheel tires. J. H. Knight, Barfield, Farnham, Surrey.

25,232 (1912). Travel hat of the type having inflatable tube round the back. C. Wolff, Muhlenstrasse, Waldenburg, Silesia.

25,249 (1912). Hernia trusses. E. Phelan, 333 Calle Lopez Cotilla, Guadalajara, Jal., Mexico.

*25,284 (1912). Pressure indicators for tires. G. T. Hackley, 207 South Broadway, Los Angeles, Cal., U. S. A.

*25,325 (1912). Corsets provided with elastic insertions. D. Kops, 435 Riverside Drive, New York, U. S. A.

25,343 (1912). Stocking suspenders. R. H. and H. Wall, Ltd., 4 Love Lane, Wood st., London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

461,469 (August 19, 1913). Improvements in rubber vehicle tires. W. E. Dorgan.

461,471 (August 19). Anti-skid appliance for wheel tires. Walker Tire Chain Co.

461,483 (August 19). Pneumatic wheel for automobiles. C. A. Spittell.

461,534 (April 30). Improvements in air chambers for tires of automobiles, velocipedes and other vehicles. E. J. Andrien.

461,542 (May 26). Compressed air elastic wheel for automobiles and different vehicles. J. Rigel and J. Funel.

461,577 (July 5). Utilization of old air chambers for making soles of footwear. Société Commerciale de Caoutchouc.

461,602 (October 31, 1912). Mud guard. L. A. Gachez.

461,627 (August 5). Elastic tire for vehicle wheels. L. Lainé.

461,638 (August 11). Improvements in mud guard for vehicles. A. Dufour.

461,700 (August 22). Protective armor for tires. M. J. Broderick.

461,720 (August 21). Improvements in mud guards for motor busses and trucks. J. Menu.

461,722 (August 22). Mud guard. J. A. Duval.

461,936 (August 27). Hose for extinguishing fires, watering and other purposes. V. L. Le Renard.

462,002 (August 29). Anti-skid appliance for vehicle wheels. W. H. Snyder.

462,081 (September 2). Elastic tire. De Mello Marques.

462,125 (August 27). Process and appliance for treating gums, principally Kauri. F. V. Reynaud.

462,138 (September 21). Process for simultaneous manufacture of elastic fabric and of lace trimming on an ordinary elastic web loom and the fabrics obtained by this process. C. Faure-Roux.

462,156 (November 14, 1912). Process for the purification of rubber. C. E. Anquetol.

462,195 (November 15). Improved air chamber for pneumatic tires. P. Foucher.

462,248 (September 6, 1913). Improvements in fabrics, particularly those for covering tires or balloons and impermeable wagon cloths, by the aid of coated yarns. "Le Liais."

462,262 (September 6). Improvements in tires. E. Nathan.

462,328 (June 18). Process for the devulcanization and regeneration of rubber. M. Capel and J. Thibernele.

462,408 (September 9, 1913). Protective cover for pneumatic tire. P. L. Ambrosol and C. H. Charpentier.

462,471 (November 23, 1912). Tire cover for vehicle wheels. C. Gauthier.

462,654 (August 29). Elastic fitting for vehicle wheels. H. P. Haas.

462,672 (September 6). Mud guard for motor busses. A. A. Vincent.

462,717 (September 17). Air chamber for tires. G. Lafaury.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (With Dates of Validity).

270,783, Class 63c (September 8, 1912). Rubber protective substance, with anti-skid rivets. Eugen Czaika, Millerstrasse 171a-172, Berlin.

270,949, Class 30k (March 12,1913). Injector. Jules Cournand, Paris.

270,955, Class 39a (March 29, 1912). Apparatus for making rubber articles (particularly solid rubber tires) from various kinds of rubber-powder. Thomas Gare, Edgbaston, near Birmingham.

271,339, Class 45f (October 4, 1912). Cutting tool for tapping rubber trees, with guide roll, and a cutting edge arranged in an angular direction. Rowley, Davies & Co., Ltd., London.

271,152, Class 86c (November 20, 1908). Self-elastic webbing with the various parts made of differently twisted warp or weft yarns. Wilh. Jul. Teufel, Stuttgart.

271,608, Class 47h (April 23, 1913). Belting drive. Emma Boesner, Aix-la-Chapelle.

271,618, Class 63e (August 27, 1911). Manufacture of rubber tires of all kinds with lining of knitted material. Germanen Gummiwerk, Stuttgart.

271,724, Class 63e (August 24, 1912). Machine for manufacture of tread covers for compressed air tires, with fabric lining. Alphons Mathern, Zöllikon, Switzerland.

"AUTOPHÖNIX" PNEUMATIC VULCANIZER.

This new German vulcanizer consists of a special heating appliance, which can be screwed on and used with any pneumatic tire, whatever the measurement. Its application is very simple. The damaged portion of the tire is cleaned and coated with "Autophönix Vulcanizer Solution," and then filled with "Autophönix Vulcanizer Mass." The whole is then surrounded with a small piece of fabric, and the apparatus screwed on, being left for 20 minutes, until it has reached a temperature of 140 degs. C. (284 degs. F.), when the tire is again ready for use.

NEW STYLE OF HORN BULB MOLD.

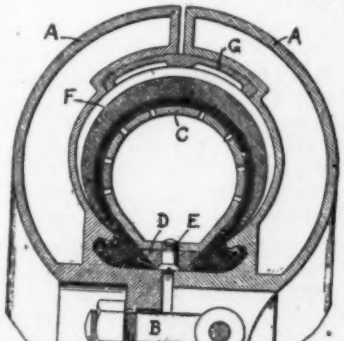
The accompanying cut shows an entirely new departure from the old style rubber bulb mold. This type is said to be a distinct innovation and is the first attempt in the nature of improvement over the original. Among the advantages of the new mold—

TWO CAVITY HORN BULB MOLD.

which, by the way, is made by William Eggers & Sons, of 294 Taaffe place, Brooklyn—is the small quantity of metal used in its construction, which naturally means that it is very much lighter and consequently more susceptible to heat, cools more quickly, and therefore economizes time in vulcanization. The cut shows a two cavity autohorn bulb mold, size No. 12, the weight of which is only twenty pounds. These molds are used in rubber factories, are said to have produced excellent results and have been extensively patented by the makers.

MOLD FOR STRETCHING AND VULCANIZING TIRES.

In the manufacture of the ordinary type of pneumatic tire, the fabric foundation of the tire casing is covered with the raw rubber and placed under a uniform tension, which stretches the fabric to approximately the limit of elongation of the threads, and the tire is vulcanized while in this condition. The accompanying drawing shows a new mold for accomplishing this purpose, the invention of N. W. McLeod, of St. Louis, Missouri, on which a patent was recently granted in England. The device comprises the hollow outer sections *A*, connected by means of the bolts *B*. The hollow core *C* is made in sections and is secured to the ring *D* by the screws *E*. The core is perforated so that steam admitted to the interior thereof will act upon the inner surface of the tire casing *F*. It will be seen that the space between the core and the outer section *A* is greater than the cross section of the tire before vulcanization. This allows sufficient clearance for expansion of the casing and the stretching of the fabric when the bolts *B* are tightened. Means are provided for introducing different forms of tread molds between the section *A* and the tire, one of these molds being shown at *G*, with the apparatus ready for the introduction of steam.



THE STRETCHING AND VULCANIZING MOLD.

Review of the Crude Rubber Market.

THE London rubber market for March presented few changes. Fine Pará varied during the month from 3s. (72.98c.) to 3s. 0½d. (73.99c.). The price on 24th stood at 3s. (72.98c.). Plantation up to 13th fluctuated between 2s. 3¾d. (56.25c.) and 2s. 4½d. (57.77c.). Between the 14th and 24th it ranged from 2s. 4½ d. (57.77c.) to 2s. 6d. (60.81c.), standing on 24th at 2s. 5¾d. (60.31c.).

Going back several months the figures on various dates were:

	Fine Pará	*Plantation.*
December 23	3s. 1¼d. (75.51 cents).	2s. 3¼d. (55.24 cents).
January 23	3s. 2 d. (77.03 cents).	2s. 4¼d. (58.28 cents).
February 27	3s. 0½d. (73.48 cents).	2s. 4 d. (56.76 cents).
March 24	3s. 0 d. (72.98 cents).	2s. 5¾d. (60.31 cents).

The last auction of plantation rubber in February, on the 24th and 25th, included the record quantity of 1,326 tons; including 1,070½ Straits and 255½ Ceylon. While the competition was sufficient to absorb the whole of the offerings, prices gave way on an average 2¾d. (5½ cents) per pound; this movement being in sympathy with the gradually declining private market.

An auction slightly larger in total quantity was held on March 10 and 11, when 1,335 tons were disposed of. The offerings included the following descriptions: Malay 950 tons, Ceylon 326 tons, and Java 59 tons. Although the quantity put up was a few tons in excess of that offered at the previous sale, it was all sold at steady prices. Buyers could not in all cases satisfy their requirements.

A large quantity of the rubber being sold is said to be making its way to America. Opinion generally inclines toward the probability of a steady course of prices for some weeks, with the possibility of a subsequent decline. American business is said to be up to the mark as to quantity.

London statistics of plantation rubber show:

	1913.	1914
Stock January 31.....*tons*	2,697	3,810
February arrivals	2,451	3,550
Total	5,148	7,360
February deliveries	2,184	3,020
Stock February 28.....	2,964	4,340
Arrivals January 1 to February 28.....	5,316	7,400
Deliveries January 1 to February 28.....	4,368	6,380

These figures show that while arrivals during January and February are this year 2,084 tons ahead of last year for the same months, deliveries are larger by 2,012 tons; thus indicating that demand is about keeping pace with supply.

A statistical report to February 28 shows the world's visible supply of Brazilian rubber to be 9,080 tons, as compared with 6,960 tons at the end of January and 8,970 tons on February 28, 1913.

Reports from Brazil show that last year the exports of rubber fell off 15.2 per cent. A still larger decline is anticipated for this year, as the production of the lower grades has ceased to yield any profit.

Details of the Antwerp sale of February 19 show:

Congos—229 tons offered—207 tons sold at 13 per cent. over valuations.

Plantation—200 tons offered—198 tons sold at 4 per cent. over valuations.

Total—429 tons offered—405 tons sold.

The sale was regarded as a satisfactory one for holders. Next sale was to take place on March 25 and was to include 194 tons Congos and 109 tons plantation.

The Amsterdam sale of March 5 included: *Hevea*—97 tons; *Ficus*—11 tons; *Castilloa*—2 tons; *Getah*—5 tons. Though the market had been quiet for some days, there was keen competition at the sale. Prices realized were, however, 8 to 9 per cent. below valuations. Next sale is fixed for April 1.

At Rotterdam on March 10 there were 48 tons offered, including 18 tons Congo and 28 tons *Hevea*. The latter met with a good demand, while the former was in reduced favor. Next sale will take place on April 1.

At the Hâvre sale of February 26, demand was fairly good; 24 tons Congo having been sold out of 49 offered with an average advance of about 1½ per cent.

New York Quotations.

Following are the quotations at New York one year ago, one month ago, and March 25, the current date:

	April 1, '13.	March 1, '14.	March 25, '14.
Para.			
Islands, fine, new.....	89@90	70 @71	69 @71
Islands, fine, old.....	.....	.....	.....
Upriver, fine, new.....	92@93	75 @76	74 @75
Upriver, fine, old.....	.....	.....	.....
Islands, coarse, new.....	43@44	32 @	31 @32
Islands, coarse, old.....	.....	.....	.....
Upriver, coarse, new.....	66@67	46 @47	44 @45
Upriver, coarse, old.....	.....	.....	.....
Cameta	48@49	36 @	35½@36
Caucho (Peruvian) ball..	70@71	47½@48	45 @46
Caucho (Peruvian) sheet..	.....	.....	.....
Plantation Ceylons.			
Fine smoked sheet.....	97@	62 @63	64 @65
Fine pale crepe.....	95@	61 @62	63 @64
Fine sheets and biscuits....	92@	61 @	62 @63
Centrals.			
Esmeralda, sausage	68@	44 @45	43 @44
Guayaquil, strip	.....	.....	.....
Nicaragua, scrap	.....	41 @	40 @41
Panama.....	.....	.....	.....
Mexican plantat'n sheet ..	.....	.....	.....
Mexican, scrap	.....	42 @43	42 @43
Mexican, slab	.....	.....	.....
Mangabeira, sheet	.....	.....	.....
Guayule	64@	.....	.....
Balata, sheet	.....	.....	.....
Balata, block	.....	.....	50 @51
African.			
Lopori, ball, prime	.....	52 @53	53 @54
Lopori, strip, prime.....	.....	.....	.....
Aruwimi	80@	.....	.....
Upper Congo, ball red....	90@	.....	.....
Ikelemba	.....	.....	.....
Sierra Leone, 1st quality ..	.....	.....	.....
Massai, red	88@	49 @50	49 @54
Soudan Niggers	.....	48 @50	49 @54
Cameroon, ball	63½@	31 @32	34 @
Benguela	63@	.....	31 @
Madagascar, pinky	.....	.....	.....
Accra, flake	25@	22 @23	21 @22
East Indian.			
Assam	83@	.....	.....
Pontianak	8@	6 @6½	6 @6½
Borneo	.....	.....	.....

STATISTICS PARA INDIA RUBBER (IN TONS).

(Including Caucho)

STATISTICS FOR THE MONTH OF FEBRUARY.

	Pará.	Caucho.	1914. Tons.		1913. Tons.	1912. Tons.	1911. Tons.
Receipts at Pará	3,230	1,370	= 4,600	against	4,980	4,840	5,790
Shipments to Liverpool	1,670	810	= 2,480	"	2,410	1,990	2,290
Shipments to Continental Ports	730	150	= 880	"	370	500	330
Shipments to America	1,300	540	= 1,840	"	1,790	2,640	1,500
American Imports	830	220	= 1,050	"	2,320	2,670	1,460
American Deliveries	900	110	= 1,010	"	1,910	2,790	1,520
Liverpool Imports	1,380	470	= 1,850	"	2,029	1,745	1,586
Liverpool Deliveries	1,175	415	= 1,590	"	1,439	1,625	1,385
Continental Imports	140	10	= 150	"	390	520	350
Continental Deliveries	170	10	= 180	"	390	540	320

VISIBLE SUPPLY—1ST MARCH, 1914.

	1914. Pará.	1914. Caucho.	1913.	1912.	1911.
Stock in England, Pará, 1st hands	600	.....	585	1,600	2,156
Pará, 2nd hands	125	.....	115		364
Caucho	.....	220	480	280	490
Stock in Pará, 1st hands	480	100	1,010	290	790
2nd hands	460	130	780	910	440
Syndicate	810	.....	810	2,240	2,450
Stock in America	160	170	820	130	160
Stock on Continent	20	.....	20	60	100
Afloat—Europe	1,540	640	1,940	1,680	1,700
Afloat—America	1,300	530	770	690	590
	5,415	1,790			
Total Visible Supply, including Caucho	7,205		7,330	7,880	9,240

CROP STATISTICS—30TH JUNE, 1913, 28TH FEBRUARY, 1914.

	Pará.	Caucho.	1913/14.	1912/13.	1911/12.	1910/11.
Pará Receipts	1913/14 20,770	4,740	25,510	29,170	25,710	25,700
	1912/13 24,200	4,970				
Pará Shipments to Europe	10,710	2,890	13,600	15,550	13,320	12,690
Pará Shipments to America	9,800	1,910	11,710	14,180	13,470	9,840
England Landings, net			8,805	10,784	9,117	8,961
England Deliveries, net			9,675	10,974	12,337	9,239
America Landings, net			10,510	13,740	15,175	9,670
America Deliveries, net			10,360	13,090	14,945	9,650
Continental Imports, net			2,190	2,990	2,250	2,150
Continental Deliveries, net			2,420	3,070	2,300	2,100

POSITION—1ST MARCH, 1914.

Decrease in Receipts during February, 1914, against February, 1913	380
Decrease in Receipts—Crop, July/February, 1913/14, against 1912/13	*3,660
Decrease in Deliveries—Crop, July/February, 1913/14, England and Continent, against 1912/13	1,950
Decrease in Deliveries—Crop, July/February, 1913/14, America, against 1912/13	2,730
Decrease in Visible Supply Pará Grades, against 1st March last year	125
Decrease in Stock, England, February 28th, 1914, against February 28th, 1913	235

WM. WRIGHT & CO., Brokers,

London, 3rd March, 1914. 21, Mincing Lane, London, E.C.

During the month 50 tons Pará have been shipped from Europe to America.

*A decrease of 3,430 tons Rubber, and 230 tons Caucho.

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound:

	March 30, '14.
Old rubber boots and shoes—domestic	7¾@ 8
Old rubber boots and shoes—foreign	7½@ 7¾
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	5⅜@ 5¾
Solid rubber wagon and carriage tires	5½@ 5¾
White trimmed rubber	10 @10¼
Heavy black rubber	3¾@ 4
Air brake hose	3¼@ 4
Garden hose	1 @ 1¼
Fire and large hose	2 @ 2⅛
Matting	⅜@ ¾
No. 1 white auto tires	5½@ 5¾
Foreign auto tires	5¼@ 5½

Plantation Rubber from the Far East.

EXPORTS OF CEYLON-GROWN RUBBER.

[From January 1 to February 16, 1913 and 1914. Compiled by the Ceylon Chamber of Commerce.]

	1913.	1914.
To Great Britain.....*pounds*	1,351,670	2,148,867
To Belgium	209,354	717,777
To United States	183,694	379,243
To Australia	32,079	13,440
To Japan	25,524	75,608
To Germany	16,232	173,122
To Austria	12,860	.....
To Italy	8,108	.....
To Russia	.....	42,317
To France	.....	36,816
To Straits Settlements	.....	35,815
To India	.....	500
Total	1,839,521	3,623,505

(Same period, 1912—1,489,779 pounds; same period, 1911—697,165 pounds.)

The export figures of rubber given in the above table include the imports re-exported. (These amount to 359,101 pounds—248,568 pounds from the Straits and 110,533 pounds from India.) To arrive at the approximate quantity of Ceylon rubber exported to date, deduct the quantity of imports shown in the import table from the total exports.

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

To—	Singapore.	Malacca, Feb. 15.	Penang, Jan. 31.	Port Swettenham, Feb. 12.	TOTAL.
Great Britain...*lbs.*	1,942,325	658,600	1,504,933	2,903,286	7,009,144
Continent	199,076	.....	55,600	365,855	620,531
Japan	111,288	.....	.....	.....	111,288
Ceylon	43,888	.....	90,000	191,192	325,080
United States	1,160,380	.....	95,733	.....	1,256,113
Total	3,456,957	658,600	1,746,266	3,460,333	9,322,156
Same period, 1913	2,413,903	.....	1,027,733	4,218,179	7,659,815
Same period, 1912	973,006	.....	699,106	3,233,236	4,905,348
Same period, 1911	664,995	.....	263,334	1,995,674	2,924,003

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "The general conditions as regards Commercial Paper in the rubber line have ruled the same during March as in February, the demand continuing good at 4¼ to 4¾ per cent. for the best names, and 5 to 5½ per cent. for those not so well known."

Amsterdam.

JOOSTEN & JANSSENS report [March 5]:

Our sale today was not lacking in animation; holders having been able to sell the bulk of their offerings at relatively good prices.

Rotterdam.

HAVELAAR & DE VRIES report [March 11]:

At yesterday's sale the whole quantity was sold at relatively favorable prices, though below valuations.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

MARCH 2.—By the steamer *Denis* from Pará and Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	491,900	159,600	255,100	245,900	1,152,500
Meyer & Brown	35,800	7,500	151,700	188,000	383,000
General Rubber Co.	.....	.....	18,000	.....	18,000
H. A. Astlett & Co.	31,900	22,000	145,700	62,000	261,600
Henderson & Korn	43,900	35,300	26,700	32,400	138,300
Johnstone, Whitworth & Co.	22,100	2,100	20,700	2,800	47,700
Hagemeyer & Brunn	.....	.....	11,900	.....	11,900
W. R. Grace & Co.	20,100	.....	22,700	.....	42,800
G. Amsinck & Co.	62,500	6,700	7,300	.....	76,500
Lionel Hagenaers & Co.	47,400	10,100	7,500	12,000	77,000
Robinson & Co.	158,400	43,300	56,800	17,500	276,000
Total	914,000	286,600	724,100	560,600	2,485,300

MARCH 9.—By the steamer *Javary* from Pará, Manáos and Iquitos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	97,200	55,200	89,600	52,300	294,300
General Rubber Co.	44,000	.....	700	200	44,900
Meyer & Brown	72,900	12,400	97,500	113,500	296,300
H. A. Astlett & Co.	14,500	4,600	67,500	28,900	115,500
Henderson & Korn	33,000	18,500	32,500	37,000	121,000
Robinson & Co.	49,400	11,400	13,700	26,100	100,600
G. Amsinck & Co.	11,400	400	.....	238,400	250,200
W. R. Grace & Co.	8,900	700	7,100	19,800	36,500
H. C. Kupper	.....	.....	.....	1,600	1,600
F. Probst & Co.	.....	.....	1,100	2,300	3,400
Johnstone, Whitworth & Co.	18,200	4,400	18,300	29,900	70,800
Total	349,500	107,600	328,000	550,000	1,335,100

PARA RUBBER VIA EUROPE.

	Pounds.	
FEBRUARY 24.—By the *Cestrian*=Liverpool:		
Meyer & Brown (Fine)	10,000	
Johnstone, Whitworth & Co. (Fine)	2,200	12,200
FEBRUARY 24.—By the *Cedric*=Liverpool:		
Henderson & Korn (Fine)	27,000	
Raw Products Co. (Coarse)	60,000	
Raw Products Co. (Fine)	11,200	
Robinson & Co. (Fine)	11,200	109,400
FEBRUARY 25.—By the *President Lincoln*=Hamburg:		
Meyer & Brown (Fine)	80,000	
Arnold & Zeiss (Fine)	22,500	
Rubber & Guayule Agency, Inc. (Coarse)	15,000	
Various (Fine)	3,500	121,000
MARCH 6.—By the *Georgic*=Liverpool:		
Robinson & Co. (Fine)	11,200	
Johnstone, Whitworth & Co. (Coarse)	13,500	24,700
MARCH 7.—By the *Graf Waldersee*=Hamburg:		
Henderson & Korn (Fine)	11,200	
Rubber & Guayule Agency, Inc. (Fine)	14,500	
Ed. Maurer (Fine)	7,500	
Arnold & Zeiss (Fine)	21,000	
Raw Products Co. (Fine)	20,000	
Various (Fine)	7,000	81,200
MARCH 9.—By the *Baltic*=Liverpool:		
Meyer & Brown (Fine)	8,000	
Johnstone, Whitworth & Co. (Coarse)	11,200	
Raw Products Co. (Coarse)	4,500	23,700
MARCH 12.—By the *Finland*=Antwerp:		
Robert Badenhop (Fine)		11,200
MARCH 16.—By the *Amerika*=Hamburg:		
Henderson & Korn (Fine)	8,500	
Various (Fine)	4,500	13,000
MARCH 16.—By the *Armenian*=Liverpool:		
Henderson & Korn (Fine)	16,500	
Johnstone, Whitworth & Co. (Fine)	11,200	
Raw Products Co. (Fine)	70,000	
Raw Products Co. (Coarse)	11,200	108,900
MARCH 17.—By the *Dortmund*=Hamburg:		
Henderson & Korn (Fine)	10,000	
Various (Fine)	4,500	14,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

	Pounds.	
FEBRUARY 24.—By the *Tintoretto*=Bahia:		
Adolph Hirsch & Co.		65,000
FEBRUARY 24.—By the *Albingia*=Colombia:		
Pottberg, Ebeling & Co.	1,700	
A. Held	800	
Kunhardt & Co.	300	
Caballero & Blanco	100	2,900
FEBRUARY 21.—By the *Morro Castle*=Mexico:		
H. Marquardt & Co.		500
FEBRUARY 26.—By the *Prinz August Wilhelm*=Colombia:		
G. Amsinck & Co.	300	
Various	1,500	1,800
MARCH 2.—By the *Esperanza*=Mexico:		
Graham, Hinkley & Co.		3,500
MARCH 2.—By the *Prinz Sigismund*=Colon:		
A. Held	2,000	
De Lima Cortissoz & Co.	1,500	
Pottberg, Ebeling & Co.	3,500	7,000
MARCH 4.—By the *Emil L. Boas*=Colon:		
Rosenthal & Sons	1,100	
J. S. Sembrada & Co.	2,000	3,100
MARCH 4.—By the *Panama*=Colon:		
Pablo Calvet & Co.		2,000
MARCH 7.—By the *Mexico*=Mexico:		
E. Steiger & Co.	3,500	
Meyer & Brown	2,200	
Hermann Kluge	700	
General Export & Com. Co.	1,500	
G. Amsinck & Co.	400	
American Trading Co.	500	
Harburger & Stack	1,000	
Various	4,500	14,300
MARCH 9.—By the *Allianca*=Colon:		
W. R. Grace & Co.		1,500
MARCH 9.—By the *Allemania*=Colombia:		
Various		1,500
MARCH 10.—By the *Indian Prince*=Bahia:		
Adolph Hirsch & Co.	18,000	
MARCH 10.—By the *Cecilia*=Bahia:		
Adolph Hirsch & Co.	11,200	
R. W. Wallace & Son Mfg. Co.	2,200	13,400
MARCH 11.—By the *Prinz Joachim*=Colon:		
J. S. Sembrada & Co.	3,000	
Andean Trading Co.	4,000	7,000
MARCH 12.—By the *Danube*=Colon:		
G. Amsinck & Co.	3,000	
Gravenhorst & Co.	500	3,500
MARCH 14.—By the *Monterey*=Mexico:		
E. Steiger & Co.	5,000	
G. Amsinck & Co.	500	
Harburger & Stack	200	5,700
MARCH 14.—By the *Colon*=Colon:		
G. Amsinck & Co.	1,500	
H. W. Peabody & Co.	300	1,800
MARCH 16.—By the *Saramacca*=Puerto Cortes:		
Wessels, Kulenkampff & Co.	500	
G. Amsinck & Co.	200	700
MARCH 16.—By the *Verdi*=Bahia:		
J. H. Rossbach Bros. & Co.		65,000
MARCH 18.—By the *Prinz Eitel Frederick*=Colon:		
G. Amsinck & Co.		3,000
MARCH 20.—By the *Morro Castle*=Mexico:		
Herman Kluge		500
MARCH 20.—By the *Metapan*=Colombia:		
A. Held	4,500	
R. del Castillo	500	5,000

AFRICAN.

	Pounds.	
FEBRUARY 19.—By the *Cufic*=Liverpool:		
Arnold & Zeiss	7,000	
General Rubber Co.	13,500	20,500
FEBRUARY 20.—By the *New York*=Southampton:		
Arnold & Zeiss	17,000	
Various	11,200	28,200
FEBRUARY 24.—By the *Cestrian*=Liverpool:		
Robinson & Co.		15,000
FEBRUARY 24.—By the *Cedric*=Liverpool:		
Meyer & Brown	22,500	
Arnold & Zeiss	30,000	
Various	33,500	86,000
FEBRUARY 24.—By the *Roma*=Lisbon:		
Various		14,500
FEBRUARY 25.—By the *President Lincoln*=Hamburg:		
Meyer & Brown	$5,000	
Henderson & Korn	2,500	
Arnold & Zeiss	18,000	
Ed. Maurer	40,000	
Rubber & Guayule Agency, Inc.	20,500	
Various	59,500	195,500
MARCH 2.—By the *Philadelphia*=Southampton:		
Arnold & Zeiss		27,000
MARCH 3.—By the *Gothland*=Antwerp:		
Rubber Trading Co.	9,000	
Various	15,000	24,000
MARCH 5.—By the *Florida*=Havre:		
Meyer & Brown		6,000
MARCH 6.—By the *St. Paul*=Southampton:		
Arnold & Zeiss	90,000	
Various	33,500	123,500
MARCH 6.—By the *Georgic*=Liverpool:		
Henderson & Korn	60,000	
Robinson & Co.	7,000	
Earle Bros.	4,500	
Various	7,500	79,000
MARCH 7.—By the *Graf Waldersee*=Hamburg:		
Meyer & Brown	11,000	
Henderson & Korn	11,200	
Ed. Maurer	5,000	
Various	27,000	54,200
MARCH 9.—By the *Baltic*=Liverpool:		
Arnold & Zeiss	38,000	
Various	7,000	45,000
MARCH 9.—By the *Kaiserin Auguste Victoria*=Hamburg:		
Meyer & Brown	50,000	
Arnold & Zeiss	7,000	
Rubber & Guayule Agency, Inc.	22,500	
Ed. Maurer	77,000	
Various	5,000	161,500
MARCH 10.—By the *Indrakula*=Singapore:		
Various		22,500
MARCH 11.—By the *Caroline*=Havre:		
Arnold & Zeiss	30,000	
Ed. Maurer	10,000	
Various	16,000	56,000
MARCH 16.—By the *Armenian*=Liverpool:		
Meyer & Brown	7,500	
Henderson & Korn	16,500	
Various	3,000	27,000
MARCH 16.—By the *Pretoria*=Hamburg:		
Rubber & Guayule Agency, Inc.	1,000	
Ed. Maurer	3,500	
Various	20,000	24,500
MARCH 16.—By the *Amerika*=Hamburg:		
Arnold & Zeiss	9,500	
Henderson & Korn	18,500	
Various	2,500	30,500
MARCH 17.—By the *Minneapolis*=London:		
Arnold & Zeiss	18,000	
Various	2,000	20,000
MARCH 17.—By the *Dortmund*=Hamburg:		
Various		8,000
MARCH 17.—By the *Posillipo*=Lisbon:		
Rubber & Guayule Agency, Inc.	45,000	
Various	55,000	100,000
MARCH 18.—By the *Zeeland*=Antwerp:		
Meyer & Brown	22,000	
Arnold & Zeiss	5,600	
Rubber Trading Co.	7,500	
Various	15,000	50,100

EAST INDIAN.

[*Denotes plantation rubber.]

	Pounds.	
FEBRUARY 20.—By the *New York*=Southampton:		
Meyer & Brown	*6,600	
Ed. Maurer	*5,000	
W. R. Grace & Co.	*80,000	
Arnold & Zeiss	*75,000	
Robinson & Co.	*60,000	
Rubber Trading Co.	*3,500	
Goodyear Tire & Rubber Co.	*65,000	*295,100

FEBRUARY 24.—By the *Maryland*=Antwerp:

Meyer & Brown	*69,000	
Charles T. Wilson	*65,000	
General Rubber Co.	*103,000	
Johnstone, Whitworth & Co.	*120,000	
Western Electric Co.	*25,000	
Henderson & Korn	*20,000	
Various	*30,000	*432,000

FEBRUARY 24.—By the *Tannenfels*=Colombo:

W. R. Grace & Co.		*12,500

FEBRUARY 25.—By the *Minnewaska*=London:

Meyer & Brown	*57,000	
Adolph Hirsch & Co.	*11,200	
Henderson & Korn	*60,000	
Raw Products Co.	*2,200	
Charles T. Wilson	*25,000	
Arnold & Zeiss	*67,000	
W. R. Grace & Co.	*10,000	
Rubber & Guayule Agency, Inc.	*10,000	
Ed. Maurer	*28,000	
Ed. Boustead & Co.	*17,000	
Johnstone, Whitworth & Co.	*37,500	
Various	*78,500	*403,400

FEBRUARY 25.—By the *President Lincoln*=Hamburg:

Rubber & Guayule Agency, Inc.	*6,000	
Various	*14,000	*20,000

FEBRUARY 26.—By the *Olympic*=Southampton:

Arnold & Zeiss	*280,000	
Rubber Trading Co.	*44,000	
Various	*16,000	*340,000

FEBRUARY 26.—By the *Noordam*=Amsterdam:

Rubber Trading Co.	*17,500	
Arnold & Zeiss	*23,500	
Various	*78,500	*119,500

FEBRUARY 28.—By the *Kathlambo*=Colombo:

Meyer & Brown	*25,000	
Rubber & Guayule Agency, Inc.	*26,000	
H. W. Peabody & Co.	*4,000	
W. R. Grace & Co.	*65,000	
Henderson & Korn	*35,000	*155,000

FEBRUARY 28.—By the *Muncaster Castle*=Singapore:

Meyer & Brown	*7,000	
Henderson & Korn	*107,000	
Arnold & Zeiss	*65,000	
Ed. Maurer	*14,000	
Malaysian Rubber Co.	*1,200	
Hadden & Co.	*15,000	
Ed. Boustead & Co.	*7,000	
Robinson & Co.	*5,600	
Henderson & Korn	*11,200	
Various	*37,000	*270,000

MARCH 2.—By the *Minnetonka*=London:

General Rubber Co.	*30,000	
Johnstone, Whitworth & Co.	*132,000	
Henderson & Korn	*16,000	
Ed. Maurer	*6,000	
Ed. Boustead & Co.	*6,000	
Charles T. Wilson	*42,000	
W. R. Grace & Co.	*20,000	
Various	*18,500	*270,500

MARCH 2.—By the *Philadelphia*=Southampton:

Arnold & Zeiss	*97,000	
Robinson & Co.	*5,000	
Charles T. Wilson	*28,500	
W. R. Grace & Co.	*40,500	
Rubber & Guayule Agency, Inc.	*9,000	
Ed. Maurer	*25,600	
Rubber Trading Co.	*7,000	
Various	*17,500	*230,100

MARCH 3.—By the *Gothland*=Antwerp:

Meyer & Brown	*250,000	
Various	*33,500	*283,500

MARCH 4.—By the *Kroonland*=Antwerp:

Meyer & Brown	*220,000	
Arnold & Zeiss	*10,000	
Rubber Trading Co.	*2,000	*232,000

MARCH 5.—By the *Ryndam*=Amsterdam:

Manhattan Rubber Mfg. Co.	*5,000	
Robinson & Co.	*5,000	
Robert Badenhop	*1,200	
Various	*6,500	*17,700

MARCH 6.—By the *St. Paul*=Southampton:

Meyer & Brown	*3,500	
Ed. Maurer	*8,000	
W. R. Grace & Co.	*19,000	
Charles T. Wilson	*17,000	
Henderson & Korn	*6,500	
Arnold & Zeiss	*16,000	*70,000

MARCH 6.—By the *City of Norwich*=Colombo:

Meyer & Brown	*95,000	
Henderson & Korn	*40,000	
W. R. Grace & Co.	*52,000	
Robinson & Co.	*2,200	
Various	*23,500	*212,700

MARCH 7.—By the *Graf Waldersee*=Hamburg:

Rubber & Guayule Agency, Inc.	*18,000	
Ed. Maurer	*10,000	*28,000

MARCH 9.—By the *Kaiserin Auguste Victoria*=Hamburg:

Charles T. Wilson	*4,000	
Various	*5,000	*9,000

MARCH 10.—By the *Mesaba*=London:

Meyer & Brown	*34,000	
Charles T. Wilson	*67,000	
Adolph Hirsch & Co.	*13,500	
Henderson & Korn	*70,000	
J. H. Rossbach & Bros.	*14,500	
Johnstone, Whitworth & Co.	*55,000	
General Rubber Co.	*77,500	
Robinson & Co.	*4,500	
Ed. Boustead & Co.	*11,200	
Ed. Maurer	*11,000	*358,200

MARCH 10.—By the *Indrakula*=Singapore:

Meyer & Brown	*17,000	
Henderson & Korn	*69,000	
Hadden & Co.	*4,500	
Ed. Boustead & Co.	*45,000	
L. Littlejohn & Co.	*37,000	
Various	*79,000	*251,500

MARCH 11.—By the *Caroline*=Havre:

Michelin Tire Co.		*75,000

MARCH 12.—By the *Finland*=Antwerp:

Meyer & Brown	*245,000	
Arnold & Zeiss	*28,000	
Rubber & Guayule Agency, Inc.	*16,000	
Malaysian Rubber Co.	*22,500	
Rubber Trading Co.	*17,000	*328,500

MARCH 12.—By the *Oceanic*=Southampton:

Meyer & Brown	*25,000	
W. H. Stiles	*14,000	
Ed. Maurer	*49,000	
Arnold & Zeiss	*335,000	
Henderson & Korn	*35,000	
Earle Bros.	*20,000	
W. R. Grace & Co.	*80,000	
Rubber & Guayule Agency, Inc.	*11,200	*769,200

MARCH 13.—By the *Chicago*=Havre:

Michelin Tire Co.		*22,500

MARCH 13.—By the *St. Patrick*=Singapore:

Meyer & Brown	*5,500	
Arnold & Zeiss	*105,000	
United Malaysian Rub. Co.	*3,500	
Ed. Maurer	*8,000	
W. Stiles	*6,000	
Henderson & Korn	*63,000	
Various	*36,000	*227,000

MARCH 16.—By the *Pretoria*=Hamburg:

Rubber & Guayule Agency, Inc.	*5,000	
Ed. Maurer	*19,000	
Various	*4,500	*28,500

MARCH 16.—By the *America*=Hamburg:

Henderson & Korn	*22,500	
Various	*5,000	*27,500

MARCH 17.—By the *Dortmund*=Hamburg:

Meyer & Brown	*11,200	
Various	*6,500	*17,700

MARCH 17.—By the *Minneapolis*=London:

Meyer & Brown	*28,000	
W. R. Grace & Co.	*67,000	
Charles T. Wilson	*80,000	
Ed. Boustead & Co.	*6,000	
Johnstone, Whitworth & Co.	*70,000	
Henderson & Korn	*65,000	
General Rubber Co.	*350,000	
Robinson & Co.	*20,000	
Arnold & Zeiss	*125,000	
Raw Products Co.	*4,500	
Various	*22,500	*838,000

MARCH 18.—By the *Zeeland*=Antwerp:

Meyer & Brown	*139,500	
Arnold & Zeiss	*30,000	
Rubber & Guayule Agency, Inc.	*7,000	*176,500

MARCH 18.—By the *Potsdam*=Amsterdam:

Meyer & Brown	*17,000	
Various	*2,000	*19,000

MARCH 20.—By the *New York*=Southampton:

Meyer & Brown	*15,000	
Ed. Maurer	*17,000	
W. R. Grace & Co.	*82,000	
Arnold & Zeiss	*50,000	*164,000

MARCH 20.—By the *Karroo*=Colombo:

Meyer & Brown	*63,000	
Henderson & Korn	*26,500	
H. W. Peabody & Co.	*8,000	
W. R. Grace & Co.	*105,000	
Rubber & Guayule Agency, Inc.	*18,000	
Robinson & Co.	*26,000	
W. Stiles	*8,500	
Adolph Hirsch & Co.	*13,000	
Various	*27,000	*295,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—FEBRUARY, 1914.

Imports:	Pounds.	Value.
India-rubber	10,346,929	$5,302,665
Balata	102,590	50,350
Guayule	.....	.....
Gutta-percha	71,983	27,607
Gutta-jelutong (Pontianak)	1,105,702	54,388
Total	11,627,204	$5,435,010
Exports.		
India-rubber	140,606	87,942
Balata	30,774	18,384
Guayule	.....	.....
Gutta-percha	.....	.....
Reclaimed rubber	58,240	9,083
Gutta-jelutong (Pontianak)	.....	.....
Rubber scrap, imported	693,387	60,585
Rubber scrap, exported	373,252	26,028

BOSTON ARRIVALS.

IMPORTS IN FEBRUARY, 1914.

	Pounds.	Value.
Gutta-jelutong	163,512	$6,894
Gutta-percha	12,000	1,557
India rubber	81,928	41,056

EXPORTS OF INDIA-RUBBER AND CAUCHO FROM PARA, MANAOS AND IQUITOS FOR JANUARY, 1914 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					GRAND
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	168,236	49,125	204,994	40,932	463,287	306,999	36,565	19,949	48,606	412,119	875,406
General Rubber Co. of Brazil	89,989	14,076	42,502	66,506	213,013	25,793	4,044	7,288	12,303	49,428	262,441
J. Marques	116,205	27,421	168,926	50,471	363,023	124,252	3,230	16,830	19,784	164,096	527,119
Seligmann & Co.	6,190	.....	.....	18,913	25,103	35,107	.....	4,575	.....	39,682	64,785
Suarez Hermanos & Co., Ltd.	29,769	.....	4,548	450	34,767	35,828	.....	13,284	34,456	83,568	118,335
De Lagotellerie & Co.	.....	.....	.....	.....	.....	27,610	850	.....	.....	23,460	23,460
Pires Teixeira & Co.	32,280	5,440	109,580	560	147,860	39,270	.....	7,920	.....	47,190	195,050
Sundry exporters	6,630	170	4,290	1,680	12,770	.....	.....	2,310	280	2,590	15,360
Itacoatiara, direct	.....	.....	.....	.....	.....	15,580	2,234	9,563	5,817	33,194	33,194
	449,299	96,172	534,840	179,512	1,259,823	605,439	46,923	81,719	121,246	855,327	2,115,150
Manáos, direct	465,568	106,220	157,728	58,842	788,358	489,138	99,687	85,437	170,028	844,290	1,632,648
Total	914,867	202,392	692,568	238,354	2,048,181	1,094,577	146,610	167,156	291,274	1,699,617	3,747,798

INDIA RUBBER WORLD

Vol. 50. APRIL 1, 1914. No. 1.

TABLE OF CONTENTS.

Editorials:
The Awakening of the Amazon 337
The Responsiveness of the Dump Heap 337
Four Months of the New Tariff 338
The American Consumption of Rubber 338
A Genuinely Helpful Sort of Help 338
The Annual Show Losing Favor 339
The Latest Exploit of Inventive Genius 339
What the Rubber Chemists Are Doing 340
Manufacture and Properties of Sublimed White Lead 340
The Rubber Crisis in Brazil ..... *Illustrated* 341
Dr. Jacques Huber's Busy and Useful Life ..... *Illustrated* 348
Gold Coast Rubber and Water 350
Another American Speaks His Mind About Mexico 351
The Editor's Book Table ..... *Illustrated* 352
New Trade Publications ..... *Illustrated* 355
The Rubber Trade in Akron ..... *By Our Correspondent—Illustrated* 357
The Rubber Trade in Boston ..... *By Our Correspondent* 358
The Rubber Trade in Chicago ..... *By Our Correspondent—Illustrated* 359
The Rubber Trade in Rhode Island ..... *By Our Correspondent* 359
The Rubber Trade in Trenton ..... *By Our Correspondent* 360
The Rubber Trade on the Pacific Coast ..... *By Our Correspondent* 361
Rubber Consumption Per Head of Population 362
India Rubber Goods in Commerce 362
The United States Rubber Annual Meeting 362
The Report of the United States Rubber Co 363
Poel & Arnold's Judgment Affirmed on Appeal 365
Action of Acid Mine Water on Insulation of Electric Conductors 365
The Waste Material Dealers Dine ..... [With Portrait of Theodore Hofeller.] 366
The Obituary Record ..... [With Portraits.] 367
News of the American Rubber Trade ..... *Illustrated* 369
New Machines and Appliances ..... *Illustrated* 376
New Rubber Goods in the Market ..... *Illustrated* 378
The India Rubber Trade in Great Britain ..... *By Our Correspondent* 379
Some Rubber Interests in Europe 381
Ritter, Ritter & Co.'s Review and Forecast 383
Rubber Growers' Association 383
A New Pacific Source of Rubber ..... *By Our Correspondent* 384
Rubber Notes from British Guiana ..... *By Our Correspondent* 386
Some Rubber Planting Notes 387
Notes from the Cotton Trade 388
Recent Patents Relating to Rubber ..... [United States. Great Britain. France. Germany.] 389
Review of the Crude Rubber Market 393

Antwerp.

RUBBER STATISTICS FOR FEBRUARY, 1914.

Details.	1914.	1913.	1912.	1911.	1910.
Stocks, January 1..*kilos.*	420,958	463,752	586,056	645,419	482,162
Arrivals in February—					
Congo sorts	135,680	197,713	331,775	172,078	454,116
Other sorts	9,056	5,818	16,781	18,621	43,047
Plantation sorts	230,415	145,907	117,747	45,617	17,461
Aggregating	796,109	813,190	1,052,359	881,735	996,786
Sales in February	426,607	251,901	530,403	342,528	480,252
Stocks, February 28	369,502	561,289	521,956	539,207	516,534
Arrivals since January 1—					
Congo sorts	422,253	519,320	558,023	575,499	656,663
Other sorts	34,655	18,463	22,976	100,835	48,703
Plantation sorts	439,897	284,212	206,737	109,938	71,125
Aggregating	896,805	821,995	787,736	786,272	776,491
Sales since January 1	1,086,584	771,766	940,518	835,277	801,469

RUBBER ARRIVALS FROM THE CONGO.

FEBRUARY 11. By the steamer *Elizabethville:*

Messrs. Bunge & Co	(Cie du Congo belge) *kilos*	780	
do	(Belgika)	3,100	
do	(Grands Lacs)	5,700	
do		1,000	
Société Coloniale Anversoise	(Kasai)	40,400	
do	(Comminière)	12,700	
do	(Intertropical)	13,600	
Crédit Colonial & Commercial (Anc. L. & W. Van de Velde)	(Comfina)	15,600	
do	(Crevelde)	4,350	
do	(Velde)	780	
Comptoir Colonial franco-belge	(Charles Dethier)	180	
do	(American Congo Cy)	1,025	99,215

MARCH 3.—By the steamer *Anversville:*

Bunge & Co	(La Kotto) *kilos*	3,070	
do	(Comp. Commercial Congolais)	27,600	
do	(Cie du Congo belge)	270	
do	(Forminière)	4,600	
do	(Grands Lacs)	1,180	
do	(Comfina)	5,300	
do	(Intertropical)	12,700	
Société Coloniale Anversoise	(Comminière)	5,000	
Crédit Colonial & Commercial (Anc. L. & W. Van de Velde)	(Kasai)	38,900	
do	(Crevelde)	8,900	
Comptoir Colonial franco-belge (Charles Dethier)	(American Congo Cy)	4,900	
Willaert Frères		3,000	
Compt. d'Irebu		600	116,020

A HIGH PRESSURE PATCH CLAMP.

While good cement and patches or rubber compound are essential to efficient tire repairs, a certain amount of pressure is also necessary where heat by means of a vulcanizer is not applied. The illustration shows a high pressure clamp which is used in connection with a rubber compound called "Tire-Sav," a substance of about the consistency of dough. A patch of this compound is soft and pliable when applied and makes a very close union with the surface of the inner tube. The outer edge of the patch is pressed out so thin by means of the clamp that it cannot catch on the casing and be torn off if the tube should creep in the tire. The outfit consists of a supply of "Tire-Sav" self-curing cement, the clamp, and a die on the lower end of the screw to give shape to the finished patch. [National Cement & Rubber Co., Toledo, O.]